UC SOUTHERN REGIONAL LIBRARY FACILITY



LIBRARY

THE UNIVERSITY
OF CALIFORNIA
SANTA BARBARA

PRESENTED BY

MRS. J. M. DILLMAN



IN THE SAURIAN AGE, WHEN THE WORLD'S INHABITANTS WERE GIGANTIC REPTILES

The Book of History

A History of all Nations

FROM THE EARLIEST TIMES TO THE PRESENT

WITH OVER 8000 ILLUSTRATIONS

WITH AN INTRODUCTION BY

VISCOUNT BRYCE, P.C., D.C.L., LL.D., F.R.S.

CONTRIBUTING AUTHORS

W. M. Flinders Petrie, LL.D., F.R.S.
UNIVERSITY COLLEGE, LONDON

Hans F. Helmolt, Ph.D.
EDITOR, GERMAN "HISTORY OF THE WORLD"

Stanley Lane-Poole, M.A., Litt.D.
TRINITY COLLEGE, DUBLIN

Robert Nisbet Bain
ASSISTANT LIBRARIAN, BRITISH MUSEUM

Hugo Winckler, Ph.D.
UNIVERSITY OF BERLIN

Archibald H. Sayce, D.Litt., LL.D.
OXFORD UNIVERSITY

Alfred Russel Wallace, LL.D., F.R.S.
AUTHOR, "MAN'S PLACE IN THE UNIVERSE"

Sir William Lee-Warner, K.C.S.I.
MEMBER OF COUNCIL OF INDIA

Holland Thompson, Ph.D.
THE COLLEGE OF THE CITY OF NEW YORK

W. Stewart Wallace, M.A.
UNIVERSITY OF TORONTO

Maurice Maeterlinck
ESSAYIST, POET, PHILOSOPHER

Dr. Emile J. Dillon
UNIVERSITY OF ST. PETERSBURG

Arthur Mee
EDITOR, "THE BOOK OF KNOWLEDGE"

Sir Harry H. Johnston, K.C.B., D.Sc.
LATE COMMISSIONER FOR UGANDA

Johannes Ranke
UNIVERSITY OF MUNICH

K. G. Brandis, Ph.D.
UNIVERSITY OF JENA

And many other Specialists

Volume I

MAN AND THE UNIVERSE

The World before History
The Great Steps in Man's Development
Birth of Civilisation and the Growth of Races
Making of Nations and the Influence of Nature

JAPAN

The Country and the People

NEW YORK . . THE GROLIER SOCIETY
LONDON . THE EDUCATIONAL BOOK CO.

EDITORIAL AND CONTRIBUTING STAFF

OF

THE BOOK OF HISTORY

Rt. Hon. Viscount Bryce, F.R.S.
Formerly British Ambassador to the United States, Author of "The American Commonwealth"

Professor E. Ray Lankester, F.R.S.
President British Association, 1906-7; Past Director of South Kensington Museum of Natural History

Dr. Alfred Russel Wallace, F.R.S.
Co-discoverer with Darwin of the Theory of Natural Selection; Author of "Man's Place in the Universe"

Dr. William Johnson Sollas, F.R.S.
Professor of Geology at Oxford University

Dr. W. M. Flinders Petrie, F.R.S.
Professor of Egyptology, University College, London; Founder of British School of Archæology in Egypt

Professor Wm. Boyd Dawkins, F.R.S.
Professor of Geology at Victoria University, Manchester; Author of "Early Man in Britain"

Frederic Harrison, M.A.
Hon. Fellow and formerly Tutor of Wadham College, Oxford; Vice-President of the Royal Historical Society

Dr. Archibald H. Sayce
Professor of Assyriology at Oxford University

Sir Harry H. Johnston, K.C.B.
Doctor of Science of Cambridge University; late Commissioner and Consul-General for Uganda

Dr. J. Holland Rose
Cambridge University Lecturer on Modern History; Author of "Development of the European Nations"

Dr. Stanley Lane-Poole
Professor of Arabic at Trinity College, Dublin

Sir John Knox Laughton
Professor of Modern History at King's College, London University; Editor of Lord Nelson's Despatches

Oscar Browning, M.A.
Fellow of King's College, Cambridge; University Lecturer in History

Professor Ronald M. Burrows
Professor of Greek at University College of South Wales; Author of "Discoveries in Crete"

David George Hogarth, M.A.
Director of Cretan Exploration Fund and Past Director of the British School at Athens

Herbert Paul, M.P.
Author of "A History of Modern England"

Sir Robert K. Douglas
Professor of Chinese at King's College, University of London; late Keeper of Oriental Books, British Museum

Dr. Hugo Winckler
Professor of History and Oriental Languages at the University of Berlin

Sir William Lee-Warner, K.C.S.I.
Member of the Council of India; Formerly Scholar of St. John's College, Cambridge

Dr. E. J. Dillon
Author and Journalist; Master of Oriental Languages at the University of St. Petersburg

William Romaine Paterson, M.A.
Author of "The Nemesis of Nations"

W. Warde Fowler, M.A.
Scholar and Fellow of Lincoln College, Oxford; Author of "The City-State of the Greeks and Romans"

Dr. H. F. Helmolt
Author of "German History" and Editor of the German "History of the World"

Professor Konrad Haebler
Of the Imperial Library of Berlin

Professor Richard Mayr
Of the Vienna Academy of Commerce

Arthur Mee
Editor of The Book of Knowledge.

Professor Rudolf Scala
Of the Imperial University of Vienna

Professor Karl Weule
Director of the Leipzig Museum of Anthropology

Professor Wilhelm Walther
Of the University of Rostock

Arthur Christopher Benson, M.A.
Fellow of Magdalene College, Cambridge; Editor of The Correspondence of Queen Victoria

Major Martin Hume
Lecturer in Spanish History and Literature at Pembroke College, Cambridge

Robert Nisbet Bain
Traveller and Historian; Assistant Librarian at the British Museum

Richard Whiteing
Author of "The Life of Paris"

His Excellency Max von Brandt
Ex-German Ambassador to China and Minister in Japan

Francis H. Skrine
Traveller and Explorer; late of the Indian Civil Service

Holland Thompson, Ph. D.
The College of the City of New York.

Dr. Archdall Reid, F.R.S.E.
Author of "The Principles of Heredity"

Arthur Diósy
Founder of the Japan Society; Author of "The New Far East"

Dr. K. G. Brandis
Director of the University Libraries at Jena

Thomas Hodgkin, D.C.L.
Author of "A Political History of England"

Professor Joseph Kohler
Professor of Jurisprudence at Berlin University

Angus Hamilton
Traveller and Correspondent in the Far East; Author of "Afghanistan"

J. G. D. Campbell, M.A.
Late Educational Adviser to the Government of Siam

W. R. Carles, C.M.G.
Geographer; late British Consul at Tientsin, China

Professor Johannes Ranke
Professor of Anthropology, Physiology, and Natural History at Munich

W. S. Wallace, M. A.
University of Toronto.

Hon. Bernhard R. Wise
Scholar of Queen's College, Oxford; Ex-Attorney-General of New South Wales

H. W. C. Davis, M.A.
Fellow of Balliol College, Oxford

CONTENTS OF VOLUME I

THE SAURIAN AGE . . . . . FRONTISPIECE

FIRST GRAND DIVISION

MAN AND THE UNIVERSE

PAGE

Editorial Introduction 1
Plan of the HISTORY 3
Plan of First Grand Division 6
A View across the Ages 7
Summary of World History 60
Chronology of 10,000 Years 61
Time-table of the Nations 74
Contemporary Figures in History 78
The Beginning of the Earth 79
Four Periods of the Earth's Development 80
Geological Clock of the World's Life 90
How Life became possible on Earth 91
Scene from the Prehistoric World . . . . . Plate facing 96
Beginning of Life on the Earth 99
How Man obtained Mastery of the Earth 108

THE WORLD BEFORE HISTORY

Prehistoric Man attacking Cave Bears . . . . . Plate facing 114
The Wonderful Story of Drift Man 115
The Appearance of Man on the Earth 127
Life of Man in the Stone Age 132
Primitive Man in the Past and Present 145
The Home Life of Primitive Folk 164
When History was dawning 175

THE GREAT STEPS IN MAN'S DEVELOPMENT

The Material Progress of Mankind 185
Beginnings of Commerce . . . . . Plate facing 192
The Higher Progress of Mankind 203

BIRTH OF CIVILISATION AND GROWTH OF RACES

Seven Wonders of Ancient Civilisation 225
Rise of Civilisation in Egypt 233
Rise of Civilisation in Mesopotamia 259

PAGE

Rise of Civilisation in Europe 281
The Triumph of Race 299
Alphabet of the World's Races 311
Little Gallery of Races 313
Types of the Chief Races of Mankind 349
Ethnological Chart of the Human Race 352

MAKING OF NATIONS AND THE INFLUENCE OF NATURE

Birth and Growth of Nations 353
Land and Water and Greatness of Peoples 377
Environment and the Life of Nations 387
The Size and Power of Nations 399
The Future History of Man 404

SECOND GRAND DIVISION

THE FAR EAST

Map of the Far East 406
Plan of the Second Grand Division 408
Interest and Importance of the Far East 409

JAPAN

COUNTRY AND PEOPLE

Great Dates in Japan 416
The Empire of the Eastern Seas 417
Map of Japan 432
Qualities of the Japanese People 433

LIST OF SPECIAL PLATES IN THE BOOK OF HISTORY

	PAGE
The Saurian Age	Frontispiece, Vol. 1
Scene from the Prehistoric World: Early Ice Age	Facing 96
Prehistoric Men Attacking the Great Cave Bears	" 114
The Beginnings of Commerce	" 192
Carrying Off an Emperor	Frontispiece, Vol. 2
Buddha, "The Light of Asia"	Facing 562
Four Famous Figures in Chinese History	" 754
The Colour of India	Frontispiece, Vol. 3
Gems of Indian Architecture	Facing 1154
Indian Temples	" 1196
Nineveh in the Days of Assyria's Ascendancy	Frontispiece, Vol. 4
Two Indian Scenes	Facing 1364
Spring Carnival at a Tibetan Monastery	" 1436
The Pyramids of Abusir	Frontispiece, Vol. 5
Destruction of Jerusalem by the Romans	Facing 1860
Palace of an Assyrian King	" 1956
The Sphinx	" 1996
Alexander, the World Conqueror	Frontispiece, Vol. 6
The Acropolis of Athens	Facing 2504
An Arab Storyteller	Frontispiece, Vol. 7
Theodora, the Byzantine Empress	Facing 2906
Glimpse of the Life in a Turkish Harem	" 2994
Primitive Justice	Frontispiece, Vol. 8
Thaddeus Reyten at the Diet of Warsaw	Facing 3282
Roland	" 3484
Prince Arthur and Hubert	Frontispiece, Vol. 9
Venerable Bede Dictating His Translation of the Gospel of St. John	Facing 3716
"The Vigil": A Knight of the Middle Ages	" 3788
Alfred, the Hero King of England	" 3834
King John Granting Magna Charta	" 3865
Crusaders Sighting Jerusalem	Frontispiece, Vol. 10
Wolsey's Last Interview with Henry VIII	Facing 4168
Charles I on His Way to Execution	" 4340
Charles II Visiting Wren	Frontispiece, Vol. 11
Napoleon the Great	Facing 4636
"Peace with Honour"	Frontispiece, Vol. 12
The French Soldiers' Unrealised Dream of Victory	Facing 5104
Recessional	Frontispiece, Vol. 13
The Conqueror's Gift to London	Facing 5464
King Edward VII	Facing 5614
Clio, "The Muse of History"	Frontispiece, Vol. 14
Flags that Fly in the Four Winds of Heaven	Facing 5874
Statue of Liberty	Frontispiece, Vol. 15
Hope	Facing Index

LIST OF MAPS

APPEARING IN THE BOOK OF HISTORY

	PAGE
The World as Known to its First Historian	8
Shifting of the Centre of the World's Commerce	28
How the Mediterranean has Given Place to the Atlantic	29
The First Maps	51
Modern Representation of the World	52
The Europeanisation of the World	55
The Shaping of the Face of the Earth	85
How Mountain Ranges were formed	87
Europe Before the British Isles were Formed	118
The Submerged Lands of Europe	119
Europe in the Ice Age	155
Egypt in Three Periods	243
Babylonia	260
Sea Routes of Ancient Civilisation	283
Land Routes of Ancient Civilisation	284
How Civilisation Spread through Europe	359
The Expansion of White Races	361
The Island that Rules the Sea	378
Oceans of the World	383
Effect of Climate on the Course of History	391
Political Expansion	396
Relation of Rivers and Sea to the Civilisation of Countries	397
South America	
Africa	
Europe	
The Far East, and Australia, Oceania and Malaysia	406
The Island Empire of Japan	432
Japan in the Fifth Century	457
Siberia	634
Movement of the Peoples of Siberia	636
Russia's Advance in Western Asia	676
Growth of Russia in the Far East	677
The Trans-Siberian Line	692
The Chinese Empire	708
Korea and its Surroundings	858
The Malay Archipelago	886
Islands of Oceania	947
New Zealand	986
Australia and Tasmania	1010
Britain Contrasted with Australia	1012
South-east Australia, Indicating Products	1013
Bed of the Pacific Ocean	1102
The Middle East	1120
Modern India	1161
India in 1801	1266
Bed of the Indian Ocean and China Sea	1419
Suez Canal	1434
Mountain Systems In and Around Tibet	1457
The Approach of Lhasa	1505
Early Empires of the Ancient Near East	1562
Later Empires of the Ancient Near East	1563
Ancient Empires of Western Asia	1582
Modern Africa	2001
Races and Religions of Africa	2005
Natural Products of Africa	2009
Basin of the River Nile	2022
Delta of the River Nile	2024
Utica as it Was	2188
The Remains of Utica	2189
Ancient States of Mediterranean North Africa	2191
Niger River and Guinea Coast	2229
Great Britain in South Africa	2322
Basin of the Zambesi	2332
Basin of the Congo	2347
General Map of Europe	2356
Geographical Connection of the Mediterranean Coasts	2373
Ancient Greece	2482
World Empire of Alexander the Great	2561
Italy in the First Century B.C.	2621
The Roman Empire	2738
Origin of the Barbaric Nations	2797
Principal Countries of Eastern Europe	2894
World's Great Empires Between 777 and 814 A.D.	2934
Turkey and Surrounding Countries in the 14th and 17th Centuries	3082
Historical Maps of Poland and Western Russia	3220
Western Europe in the Middle Ages	4138
Europe During the Revolutionary Era	4636
Modern Europe	4788
Britain's Maritime Enterprise	5440
The British Empire in 1702	5462
The British Empire in 1909	5463
The Atlantic Ocean	5656
South America in the Sixteenth Century	5915
South America as it is To-day	5983
North Pole, with routes of Explorers	6014
South Pole	6045
North America	6431



THE BOOK OF HISTORY

This is the story of the earth from the first thing we know of it to the time in which we live. It is the story of man from the first thing we know of him to the last thought that the vision of modern science can suggest

THERE is no need here to discuss the question how far it is possible to write a universal history, or on what lines such a history should proceed. These points may well be left where Lord Bryce leaves them in his introduction to this book. Nor need we consider what history is; the plain man may be left to make up his own mind as to that while the philosophers are making up theirs. A word may be said, however, of the plan and purpose of this work, especially of that distinction of it which is at once the ground of its appeal and its justification.

A UNIVERSAL HISTORY OF THE UNIVERSE

It is a commonplace to say of a great work that it is unique, and there would at first sight seem to be peculiar presumption in making such a claim for a History of the World. It may be claimed, however, without any fear of contradiction, that this work has no rival in the English language.

There have been histories of the world before; there are available in large numbers histories of all countries well worthy of attention; but there is not, and it may be doubted if there has ever been attempted before, a scientific World-History. This work is, as far as it can possibly be in the present state of knowledge, a universal history of the universe.

SCIENCE AND HISTORY

That is a far reaching claim to make, but a mere glance through the names of those whose services have been enlisted for the work will make its basis clear. The contributors include some of the foremost students of science. Many men of eminence whose names do not usually come into historical works will be found here. Their function may be described as holding the Lamp of Science up to History. It is for these authorities to read the story of the earth and to tell the plain man what they read there, as Turner read the sunset and painted what he saw. The simile is not so unfortunate as it may appear, because, although our canvas has not the same room for the artist's imagination as Turner's had, it will probably be admitted that the imagination of the scientist is often nearer to the truth of things than the conventional belief.

THE LIFE-STORY OF ALL NATIONS

And the scientist will come into our History whenever and wherever science has any light to throw upon its problems. To the creators of this work the world is not merely an aggregation of countries under more or less settled governments, nor is a country merely the seat of a political system. They conceive the earth as a part of the universe, as one world among many; and this is the story of a huge ball flying in space, on which men and women live and move, on which mighty nations rise and rule and pass away, on which great empires crumble into dust. It is the entrancing book of man and the universe, the life-story of all nations. It begins with the beginning; it regards the universe, as modern science has taught us to regard it, as a vast unit, in which the life of man is the ultimate consummation.

A history of the world cannot be written in a day. It is like an institution—it must be allowed to grow. It would be a purposeless sacrifice in an undertaking of such magnitude to reject any work of building-up that is available, and this History has a rare privilege in being able to utilise the result of the matchless research, the tireless industry, the unequalled knowledge of Dr. Hans Helmolt and the distinguished staff of scholars and investigators who have been engaged with him for many years in preparing a history of the world on precisely the lines laid down in this work.

THE MATERIAL FOR A WORLD HISTORY

It would be impossible to exaggerate the value of the elaborate research made for Dr. Helmolt by such of his eminent collaborators as Professor Johannes Ranke, Professor Ratzel, Professor Joseph Kohler, and others whose names stand for foremost authority wherever the value of learning is understood, and it is one of the chief claims of this work to recognition that it has behind it all the material collected by Dr. Helmolt's staff, with all the judgment and skill of Dr. Helmolt himself in co-ordinating the labour of his assistants.

A work so universal in time and place must engage many minds. Behind it there must be the labour and thought of many lives. The materials for a world-history cannot be amassed by one man, cannot be gathered together in the time that it is possible for one man to devote to them. A moment's reflection reveals the vastness and complexity of the arrangements for such a work, the reaching-out into far corners of the earth, the ransacking of historical libraries and official archives; the placing of the result of all this research into the hands of a hundred trained historians, the analysing, sifting, and editing of each part as if it were in itself a perfect whole.

A BOOK OF HUMAN EXPERIENCE

All this labour can hardly be measured. And if we add to our reckoning the work of illustrating the world's history in pictures, the task of finding illustrations where they are rare as precious stones, or of choosing them where their number is bewildering, the labour that a world-history involves is, indeed, incalculable. It can only be accomplished by the co-operation of many minds, working over a long period, drawing upon actual experience in every part of the world.

Especially is this so in the present work. There are histories that can be made up from books, but this is not one of them. The BOOK OF HISTORY is not only a great book of human experience, as every history is; it is the *product* of experience. It could never have been written if the men who write it had not helped to make the history that they write.

THE MAKERS OF THE BOOK

It is a book of history by writers and makers of history; it is a book of action by men of action; it is a book, that is, by men who know intimately the real life of the world. When Professor Ratzel writes of the making of nations, he writes with perhaps an unequalled knowledge of the conditions that have made for human progress; when Dr. Flinders Petrie writes of Egypt, when Dr. Sayce writes of Assyria, they write with the same authority that Sir Harry Johnston has in writing of those parts of the British Empire that he has helped to govern.

The real rulers of the world are not the princes, and among the makers of this book are men who, though the fierce light that beats upon a throne has not beat upon them, have borne the burden of empire and of ruling men. It is the ideal collaboration, that of the brilliant investigator, the scientific interpreter, and the man of affairs, and it makes possible the achievement of a History which we have claimed to be unique.

THE WORLD YESTERDAY, TO-DAY & TO-MORROW

We have the facts from the pens of the men who have dug them up fresh from the earth itself or who know them from experience; we have them treated by the men who can turn upon them the full light of modern science; we have the world as it moves in our own time described by the men who know it from the centre, and know it therefore best.

This is the story of the world, then, yesterday and to-day. And, as history goes on, as to-day becomes yesterday and to-morrow becomes to-day, we shall find in this book a vision of the things that lie before. Out of the deeps of Time came man. Through the mists of Time he grew. Down the ages of Time he goes. Whence he came we guess; how he lives we know; where he goes the wisdom of History does not tell. But the history of the world is young, and young men shall see visions.

THE EDITORS

THE BOOK OF HISTORY

The Life-Story of the Earth and of All Nations

TOLD IN SEVEN GRAND DIVISIONS

This plan provides a general scheme for the HISTORY, but is not intended for reference. It does not follow that the exact order of countries here given is maintained throughout the volumes. A full index appears at the end of the work

I—MAN AND THE UNIVERSE

THE WORLD AND ITS STORY

A View Across the Ages: Introduction
Summary of the History of the World
Chronology of 10,000 Years and Chart of Nations

MAKING OF THE EARTH AND THE COMING OF MAN

The Beginning of the Earth
How Life is Possible on the Earth
The Beginning of Life on the Earth
How Man Obtained the Mastery of the Earth

THE RISE OF MAN AND THE EVE OF HISTORY

The World Before History
The Great Steps in Man's Development

BIRTH OF CIVILISATION & THE GROWTH OF RACES

The Beginnings of Civilisation
How Civilisation Came to Europe
The Triumph of Race
An Alphabet of the World's Races

MAKING OF NATIONS & THE INFLUENCE OF NATURE

The Birth and Growth of Nations
Influence of Land and Water on National History
How Nations are Affected by Their Environment
The Size and Power of Nations
The Future History of Man

II—THE FAR EAST

The Interest and Importance of the Far East
Japan. Siberia. China. Korea
Malaysia
Philippines. Malay States. Straits Settlements. Borneo. Sarawak. Sumatra. Java. New Guinea, and other Islands of Malay Archipelago
Australia
New South Wales. Victoria. Queensland. South Australia. West Australia. Tasmania
Oceania
New Zealand. Fiji. Pitcairn. Hawaii. Samoa. Tonga and other Islands
The Influence of the Pacific Ocean in History

III—THE MIDDLE EAST

The Importance of the Middle East
India. Including Ceylon and the Native States
Further India
Siam. Annam. Burma. Tonking. Cochin China. Cambodia. Champa
The Influence of the Indian Ocean in History
Central Asia. Afghanistan. Baluchistan. Turkestan. Thibet

IV—THE NEAR EAST

The Ancient Empires of Western Asia
Babylonia. Assyria. Elam
Early Nations of Western Asia
Scythia. Sarmatia. Armenia. Syria. Phœnicia. Israel
Western Asia from the Rise of Persia to Mohammed
Persia. Asia Minor. Syria. Palestine. Arabia. Mediterranean Islands
Western Asia from the Time of Mohammed
The Saracen Dominion. The Turkish Empire in Asia. Persia. Arabia

V—AFRICA

Legacy of Ancient Empires to the Modern World
Egypt and the Egyptian Sudan
North Africa
Tripoli. Tunis. Morocco. Algeria and the French Territories. Sierra Leone. Liberia. Gold Coast. Nigeria. German West Africa. Abyssinia. Somaliland. Erythrea. British East Africa. Zanzibar
South Africa
Native Races. The Portuguese and Dutch in South Africa. British South Africa: Cape Colony, Natal, Transvaal, Orange River Colony, Rhodesia. Congo Free State. Portuguese East Africa. Angola. German East Africa. German South-West Africa. Madagascar

VI—EUROPE

1. EUROPE TO THE FALL OF THE ROMAN EMPIRE

Mediterranean Influence in the Making of Europe
The Ancient Spirit of Greece and Rome
Early Peoples of Europe. Ascendancy of the Greeks
The Rise of Rome and the World Empire
Social Fabric of the Ancient World: Slave States

2. EASTERN EUROPE TO FRENCH REVOLUTION

The Byzantine Empire and the Turk in Europe
The Middle Peoples
Russia, Poland, and the Baltic Provinces
The Social Fabric of the Mediæval World: The Twilight of Nations

3. WESTERN EUROPE IN THE MIDDLE AGES

A Survey of Western Mediæval Europe
The Peoples of Western Europe
The Importance of the Baltic Sea
The Emerging of the Nations
Frankish Dominion and the Empire of Charlemagne. England. Spanish Peninsula. Italy. The Papacy. Scandinavia
The Development of the Nations
The German or Holy Roman Empire. France. England. Spain and Portugal. Italy. The Papacy. Scandinavia
The Crusades. Industry and Commerce

4. WESTERN EUROPE FROM THE REFORMATION TO THE REVOLUTION

A Survey of Western Europe
The Reformation and Wars of Religion
The Age of Louis XIV.
From the Peace of Westphalia to the Treaty of Utrecht
The Ending of the Old Order
From the Treaty of Utrecht to the Revolution
The Importance of the Atlantic to the World Powers
Religion After the Reformation. Industry and Commerce

5. THE FRENCH REVOLUTION

The Revolutionary and Napoleonic Era
The Revolution. The Republic at War and the Rise of Napoleon. The Zenith of Napoleon and his Fall
Great Britain in the Napoleonic Era

6. THE RE-MAKING OF EUROPE

Europe After Waterloo
The Triumph of Despotism. The Revolt Against Despotism
Europe in Revolution
The Second French Republic and the Coup d'Etat. The Uprising of the Little Nations. National Movements in Germany
The Consolidation of the Powers
Europe and the Second Empire. The Unification of Italy. The Unification of Germany. The Franco-German War
Great Britain to 1871. Russia and Turkey to 1871.
Europe since 1871
Great Britain. Germany. France. Austria-Hungary. Spain and Portugal. Italy. Russia. Turkey. Switzerland. Greece. Belgium. Holland. Denmark. Norway. Sweden. Bulgaria. Servia. Roumania. Montenegro. Luxemburg. Monaco. San Marino

7. THE EUROPEAN POWERS TO-DAY

Europe in Our Own Time
Great Britain. Germany. Austria-Hungary. France.
Italy. Russia. Turkey. Spain and Portugal
Minor States of Europe:
Switzerland. Greece. Belgium. Holland. Denmark. Norway. Sweden. Bulgaria. Servia. Roumania. Montenegro. Luxemburg. Monaco. San Marino

VII—AMERICA

America Before Columbus
The Primitive Races of America. The Ancient Civilisation of Central America. The Ancient Civilisation of South America
The European Colonisation
The Discovery. The Spanish Conquest. The Spanish and Portuguese Empire in America. The Independence of South and Central America. The Pilgrim Fathers and the English Settlement. The Development and Expansion of the British Colonies
The American Nation
The Revolt of the Thirteen Colonies. The Struggle for Independence and the War. The Creation of the United States. The Development of the American Nation. The United States in Our Own Time
British America
Canada. Newfoundland. British West Indies. British Honduras. Bermudas.
Central America in the 19th and 20th Centuries
Cuba. Haiti. Dominica. Porto Rico. Mexico. Guatemala. Honduras. San Salvador. Nicaragua. Costa Rica. Panama
South America in the 19th and 20th Centuries
Colombia. Venezuela. British, French and Dutch Guiana. Brazil. Ecuador. Peru. Chili. Bolivia. Paraguay. Argentina. Uruguay
The World Around the Poles
Greenland. Iceland. Arctic and Antarctic Oceans

THE BOOK OF HISTORY

FIRST GRAND DIVISION

MAN AND THE UNIVERSE





FIRST GRAND DIVISION

MAN AND THE UNIVERSE

There can, of course, be neither absolute finality nor entire unanimity in the subjects of these chapters, which are designed to enable the reader to follow the course of history with greater interest and understanding than would be possible without some scientific knowledge of life. They are presented as a symposium of modern thought on the problems concerning the origin and development of the earth and mankind

PLAN

THE WORLD AND ITS STORY

A VIEW ACROSS THE AGES
Rt. Hon. James Bryce

A SUMMARY OF THE HISTORY OF THE WORLD
Arthur D. Innes, M.A.

CHRONOLOGY OF 10,000 YEARS AND CHART OF NATIONS

MAKING OF THE EARTH & THE COMING OF MAN

THE BEGINNING OF THE EARTH
Dr. Wm. Johnson Sollas, F.R.S.

HOW LIFE BECAME POSSIBLE ON THE EARTH
Dr. Alfred Russel Wallace, F.R.S.

HOW MAN OBTAINED THE MASTERY OF THE EARTH
Dr. Archdall Reid, F.R.S.E.





THE RISE OF MAN AND THE EVE OF HISTORY

THE WORLD BEFORE HISTORY
Professor Johannes Ranke

THE GREAT STEPS IN MAN'S DEVELOPMENT
Professor Joseph Kohler

BIRTH OF CIVILISATION & THE GROWTH OF RACES

THE BIRTH OF CIVILISATION
Dr. Flinders Petrie, F.R.S.

HOW CIVILISATION CAME TO EUROPE
David George Hogarth, M.A.

THE TRIUMPH OF RACE
Dr. Archdall Reid, F.R.S.E.

ALPHABET OF THE WORLD'S RACES
W. E. Garrett Fisher, M.A.

MAKING OF NATIONS & THE INFLUENCE OF NATURE

Professor Friedrich Ratzel

THE BIRTH AND GROWTH OF NATIONS
INFLUENCE OF LAND & WATER ON NATIONAL HISTORY
EFFECT OF ENVIRONMENT ON NATIONS
THE SIZE AND POWER OF NATIONS
THE FUTURE HISTORY OF MAN

For full contents and page numbers see Index

Mr. Kipling's "Recessional" is quoted in a Frontispiece from "The Five Nations," by permission of the Author and the Publishers, Messrs. Methuen





A VIEW ACROSS THE AGES

AN INTRODUCTION TO THE BOOK OF HISTORY

BY THE RIGHT HON. VISCOUNT BRYCE

WHEN History, properly so called, has emerged from those tales of the feats of kings and heroes and those brief entries in the roll of a temple or a monastery in which we find the earliest records of the past, the idea of composing a narrative which shall not be confined to the fortunes of one nation soon presents itself.

The First True Historian

Herodotus—the first true historian, and a historian in his own line never yet surpassed—took for his subject the strife between Greeks and Barbarians which culminated in the Great Persian War of B.C. 480, and worked into his book all he could ascertain regarding most of the great peoples of the world—Babylonians and Egyptians, Persians and Scythians, as well as Greeks. Since his time many have essayed to write a Universal History; and as knowledge grew, so the compass of these treatises increased, till the outlying nations of the East were added to those of the Mediterranean and West European world which had formerly filled the whole canvas.

None of these books, however, covered the field or presented an adequate view of the annals of mankind as a whole. It was indeed impossible to do this, because the data were insufficient. Till some time way down in the nineteenth century that part of ancient history which was preserved in written documents could be based upon the literature of Israel, upon such notices regarding Egypt, Assyria, Babylon, and Iran as had been preserved by Greek or Roman writers, and upon those writers themselves. It was only for some of the Greek cities, for the kingdoms of Alexander and his successors, and for the city and Empire of Rome that fairly abundant materials were then available. Of the world outside Europe and Western Asia, whether ancient or modern, scarcely anything was known, scarcely anything even of the earlier annals of comparatively civilised peoples, such as those of India, China, and Japan, and still less of the rudimentary civilisations of Mexico and Peru. Nor, indeed, had most of the students who occupied themselves with the subject perceived how important a part in the general progress of mankind the more backward races have played, or how essential to a true History of the World is an account of the semi-civilised and even of the barbarous peoples. Thus it was not possible, until quite recent times, that the great enterprise of preparing such a history should be attempted on a plan or with materials suitable to its magnitude.

Scientific History only now Possible

The last seventy or eighty years have seen a vast increase in our materials, with a corresponding widening of the conception of what a History of the World should be. Accordingly, the time for trying to produce one upon a new plan and enlarged scale seems to have arrived; not, indeed, that the years to come will not continue to add to the historian's resources, but that those resources have recently become so much ampler than they have ever been before that the

moment may be deemed auspicious for a new departure.

The nineteenth century was marked by three changes of the utmost consequence for the writing of history.

That century, in the first place, has enormously widened our knowledge of the times hitherto called prehistoric. The discovery of methods for deciphering the inscriptions found in Egypt and Western Asia, the excavations in Assyria and Egypt, in Continental Greece and in Crete, and to a lesser extent in North Africa also, in the course of which many inscriptions have been collected and fragments of ancient art examined, have given us a mass of knowledge regarding the nations who dwelt in these countries larger and more exact than was possessed by the writers of classical antiquity who lived comparatively near to those remote times. We possess materials for the study not only of the political history but of the ethnology, the languages, and the culture of the nations which were first civilised incomparably better than were those at the disposal of the contemporaries of Vico or Gibbon or Herder. Similar results have followed as regards the Far East, from the opening up of Sanskrit literature and of the records of China and Japan. To a lesser degree, the same thing has happened as regards the semi-civilised peoples of tropical America both north and south of the Isthmus of Panama. And while long periods of time have thus been brought within the range of history, we have also learnt much more about the times that may still be called prehistoric. The investigations carried on in mounds and caves and tombs and lake-dwellings, the collection of early stone and bronze implements, and of human skulls and bones found along with those of other animals, have thrown a great deal of new light upon primitive man, his way of life, and his migrations from one region to another. As history proper has been carried back many centuries beyond its former limit, so has our knowledge of prehistoric times been extended centuries above the furthest point to which history can now reach back. And this applies not only to the countries previously little explored, but to such well-known districts as Western Europe and the Atlantic coast of America.

New Material and New Methods

Secondly, there has been during the nineteenth century a notable improvement in the critical method of handling historical materials. Much more pains have been taken to examine all available documents and records, to obtain a perfect text of each by a comparison of manuscripts or of early printed copies, and to study each by the aid of other contemporary matter. It is true that, with the exception of Egyptian papyri and some manuscripts unearthed in Oriental monasteries (besides those Indian, Chinese, and other early Eastern sacred books to which I have already referred), not very much that is absolutely new has been brought to light. It is also true that a few of the most capable students in earlier days, in the ancient world as well as since the Renaissance, have fully seen the value of original authorities and have applied to them thoroughly critical methods. This is not a discovery of our own times. Still, it may be claimed that there was never before so great a zeal for collecting and investigating all possible kinds of original texts, nor so widely diffused a knowledge of the methods to be applied in turning them to account for the purposes of history. Both in Europe and in America an unprecedentedly large number of competent men have been employed upon researches of this kind, and the result of their labours on special topics has been to provide the writer who seeks to present a general view of history with materials not only larger but far fitter for his use than his predecessors ever enjoyed. Then with the improvement



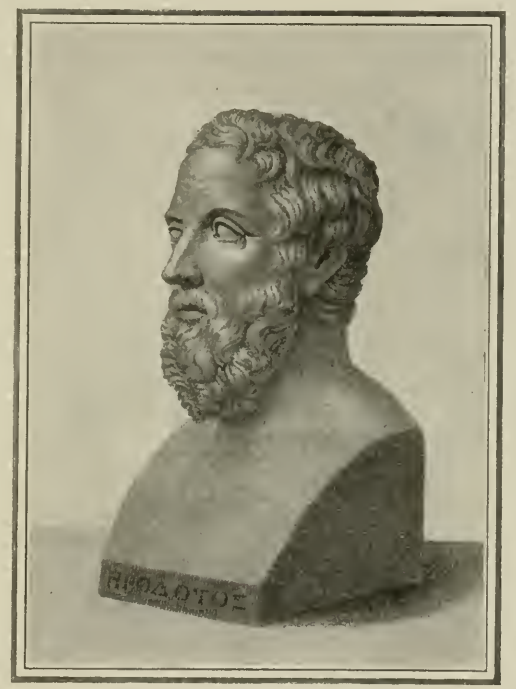
THE WORLD AS KNOWN TO ITS FIRST HISTORIAN

The world as known to Herodotus is shown by the white part of this map, indicating the limited range of ancient geographical knowledge.

in critical apparatus, there has come a more cautious and exact habit of mind in the interpretation of facts.

Thirdly, the progress of the sciences of Nature has powerfully influenced history, both by providing new data and by affecting the mental attitude of all reflective men. This has happened in several ways. Geographical exploration has made known nearly every part of the surface of the habitable globe. The great natural features of every country, its mountain ranges and rivers, its forest or deserts, have been ascertained. Its flora and fauna have been described, and thereby its capacity for supporting human life approximately calculated. The other physical conditions which govern the development of man, such as temperature, rainfall, and the direction of prevalent winds have been examined. Thus we have acquired a treasury of facts relating to the causes and conditions which help the growth of civilisation and mould it into diverse forms, conditions whose importance I shall presently discuss in considering the relation of man to his natural environment. Although a few penetrating minds had long ago seen how much the career of each nation must have been affected by physical phenomena, it is only in the last two generations that men have begun to study these phenomena in their relation to history, and to appreciate their influence in the formation of national types and in determining the movement of races over the earth's surface.

Not less remarkable has been the increase in our knowledge of the more remote and backward peoples. Nearly every one of these has now been visited by scientific travellers or missionaries, its language written down, its customs and religious rites, sometimes its folk lore also, recorded. Thus materials of the highest value have been secured, not only for completing our knowledge of mankind as a whole, but for comprehending in the early history of the now highly civilised peoples various facts which had previously remained obscure, but which became intelligible when compared with similar facts that can be studied in their actuality among tribes whom we find in the same stage to-day as were the ancestors of the civilised nations many centuries ago.



"THE FATHER OF HISTORY"
Herodotus, the first historian, was born between B.C. 470–480 at Halicarnassus, a Greek colony in Asia Minor

The progress thus achieved in the science of man regarded as a part of Nature has powerfully contributed to influence the study of human communities as they appear in history. The comparative method has become the basis for a truly scientific inquiry into the development of institutions, and the connection of religious beliefs and ceremonies with the first beginnings of institutions both social and political has been made clear by an accumulation of instances. Whether or no there be such a thing as a Science of History—a question which, since it is mainly verbal, one need not stop to discuss—there is such a thing as a scientific method applied to history; and the more familiar men have become with the methods of inquiry and canons of evidence used in physical investigations, so much the more have they tended to become exact and critical in historical investigations, and to examine the causes and the stages by and through which historical development is effected.

Progress of the Sciences

In noting this I do not suggest that what is popularly called the "Doctrine of Evolution" should be deemed a thing

borrowed by history from the sciences of nature. Most of what is true or helpful in that doctrine was known long ago, and applied long ago by historical and political thinkers. You can find it in Aristotle, perhaps before Aristotle. Even as regards the biological sciences, the notion of what we call evolution is ancient; and the merit of Darwin and other great modern naturalists has lain, not in enouncing the idea as a general theory, but in elucidating, illustrating, and demonstrating the processes by which evolution takes place. The influence of the natural sciences on history is rather to be traced in the efforts we now see to accumulate a vast mass of facts relating to the social, economic, and political life of man, for the sake of discovering general laws running through them, and imparting to them order and unity.

Historical Knowledge in Our Time

Although the most philosophic and diligent historians have always aimed at and striven for this, still the general diffusion of the method in our own time, and the greatly increased scale on which it is applied, together with the higher standard of accuracy which is exacted by the opinion of competent judges, may be, in some measure, ascribed to the examples which those who work in the spheres of physics and biology and natural history have so effectively set.

Finally, the progress of natural science has in our time, by stimulating the production and exchange of commodities, drawn the different parts of the earth much nearer to one another, and thus brought nearly all its tribes and nations into relations with one another far closer and far more frequent than existed before.

This has been done by the inventions that have given us steam and electricity as motive forces, making transport quicker and cheaper, and by the application of electricity to the transmission of words. No changes that have occurred in the past (except perhaps changes in the sphere of religion) are comparable in their importance as factors in history to those which have shortened the voyage from Western Europe to America to five and a half days, and made communication with Australia instantaneous. For the first time the human race, always essentially one, has begun to feel itself one, and civilised man has in every part of it become a contemporaneous observer of what passes in every other part.

Oneness of the Human Race

The general result of these various changes has been that while the materials for writing a history of the world have been increased, the conception of what such a history should be has been at the same time both enlarged and defined. Its scope is wider; its lines are more clearly drawn. But what do we mean by a Universal History? Briefly, a History which shall, first, include all the races and tribes of man within its scope; and, secondly, shall bring all these races and tribes into a connection with one another such as to display their annals as an organic whole.

Universal history has to deal not only with the great nations, but also with the small nations; not only with the civilised, but also with the barbarous or savage peoples; not only with the times of movement and progress, but also with the times of silence and apparent stagnation. Every fraction of humanity has contributed something to the common stock, and has lived and laboured not for itself only, but for others also, through the influence which it has perforce exercised on its neighbours. The only exceptions we can imagine are the inhabitants of some remote isle, "far placed amid the melancholy main." Yet they, too, must have once formed part of a race dwelling in the region whence they came, even if that race had died out in its old home before civilised man set foot on such an oceanic isle in a later age. The world would have been different, in however small a measure, had they never existed. As in the realm of physical science, so in that of history no fact is devoid of significance, though the true significance may remain long unnoticed. The history of the backward races presents exceptional difficulties, because they have no written records, and often scarcely any oral traditions. Sometimes it reduces itself to a description of their usages and state of life, their arts and their superstitions, at the time when civilised observers first visited them. Yet that history is instructive, not only because the phenomena observable among such races enlarge our knowledge, but also because through the study of those which survive we are able to interpret the scanty

Importance of the Small Races



ANCIENT EGYPT'S STRANGE BOOKS AND PICTORIAL RECORDS, MADE OF PAPYRUS

Papyrus, a tall, graceful, sedgy plant, supplied the favourite writing material of the ancient world, and many priceless records of antiquity are preserved to us in papyri. The pith of the plant was pressed flat and thin and joined with others to form strips, on which records were written or painted The above is a photograph of a piece of Egyptian papyrus, showing both hieroglyphics and picture-writing. The oldest piece of papyrus dates back to B.C. 3500.

records we possess of the early condition of peoples now civilised, and to go some way towards writing the history of what we have hitherto called prehistoric man.

Thus such tribes as the aborigines of Australia, the Fuegians of Magellan's Straits, the Bushmen of South Africa, the Sakalavas of Madagascar, the Lapps of Northern Europe, the Ainos of Japan, the numerous "hill-tribes" of India, will all come within the historian's ken. From each of them something may be learnt; and each of them has through contact with its more advanced neighbours affected those neighbours themselves, sometimes in blood, sometimes through superstitious beliefs or rites, frequently borrowed by the higher races from the lower (as the Norsemen learnt magic from the Lapps, and the Semites of Assyria from the Accadians), sometimes through the strife which has arisen between the savage and the more civilised man, whereby the institutions of the latter have been modified.

Obviously the historian cannot record everything. These lower races are comparatively unimportant. Their contributions to progress, their effect on the general march of events, have been but small. But they must not be wholly omitted from the picture, for without them it would have been different. One must never forget, in following the history of the great nations of antiquity, that they fought and thought and built up the fabric of their industry and art in the midst of a barbarous or savage population surrounding them on all sides, whence they drew the bulk of their slaves and some of their mercenary soldiers, and which sometimes avenged itself by sudden inroads, the fear of which kept the Greek cities, and at certain epochs even the power of Rome, watchful and anxious. So in modern times the savages among whom European colonies have been planted, or who have been transported as slaves to other colonies—sometimes, as in the case of Portugal in the fifteenth century, to

Europe itself—or those with whom Europeans have carried on trade, must not be omitted from a view of the causes which have determined the course of events in the civilised peoples.

To dwell on the part played by the small nations is less necessary here, for even a superficial student must be struck by the fact that some of them have counted for more than the larger nations to whose annals a larger space is commonly allotted. The instance of Israel is enough, so far as the ancient world is concerned, to show how little the numbers of a people have to do with the influence it may exert. For the modern world, I will take the case of Iceland.

Great Works of Little Peoples

The Icelanders are a people much smaller than even was Israel. They have never numbered more than about seventy thousand. They live in an isle so far remote, and so sundered from the rest of the world by an inhospitable ocean, that their relations both with Europe, to which ethnologically they belong, and with America, to which geographically they belong, have been comparatively scanty. But their history, from the first settlement of the island by Norwegian exiles in A.D. 874 to the extinction of the National Republic in A.D. 1264, is full of interest and instruction, in some respects a perfectly unique history. And the literature which this handful of people produced is certainly the most striking primitive literature which any modern people has produced, superior in literary quality to that of the Continental Teutons, or to that of the Romance nations, or to that of the Finns or Slavs, or even to that of the Celts. Yet most histories of Europe pass by Iceland altogether, and few persons in Continental Europe (outside Scandinavia) know anything about the inhabitants of this isle, who, amid glaciers and volcanoes, have maintained themselves at a high level of intelligence and culture for more than a thousand years.

The Culture of the Icelanders

The small peoples have no doubt been more potent in the spheres of intellect and emotion than in those of war, politics, or commerce. But the influences which belong to the sphere of creative intelligence—that is to say, of literature, philosophy, religion and art—are just those which it is peculiarly the function of a History of the World to disengage and follow out in their far-reaching consequence. They pass beyond the limits of the country where they arose. They survive, it may be, the race that gave birth to them. They pass into new forms, and through these they work in new ways upon subsequent ages.

It is also the task of universal history so to trace the march of humanity as to display the relation which each part of it bears to the others; to fit each race and tribe and nation into the main narrative. To do this, three things are needed—a comprehensive knowledge, a power of selecting the salient and significant points, and a talent for arrangement. Of these three qualifications, the first is the least rare. Ours is an age of specialists; but the more a man buries himself in special studies, the more risk does he incur of losing his sense of the place which the object of his own study fills in the general scheme of things. The highly trained historian is generally able to draw from those who have worked in particular departments the data he needs; while the master of one single department may be unable to carry his vision over the whole horizon, and see each part of the landscape in its relations to the rest.

The Wide Scope of History

In other words, a History of the World ought to be an account of the human family as an organic whole, showing how each race and state has affected other races or states, what each has brought into the common stock, and how the interaction among them has stimulated some, depressed or extinguished others, turned the main current this way or that. Even when the annals of one particular country are concerned, it needs no small measure of skill in expression as well as of constructive art to trace their connection with those of other countries. To take a familiar example, he who writes the history of England must have his eye always alive to what is passing in France on one side, and in Scotland on the other, not to speak of countries less closely connected with England, such as Germany and Spain. He must let the reader feel in what way the events that were happening in France and Scotland affected men's minds, and through men's minds affected the progress of events in England. Yet he cannot allow himself constantly to interrupt his English narra-



VIVID SCENES OF ANCIENT LIFE DEPICTED BY CONTEMPORARY ARTISTS

The walls of the tombs in Egypt form a great picture gallery of the vanished life of that country and are invaluable to the historian. This fragment from the British Museum shows how vividly the domestic figures were realised.

tive in order to tell what was passing beyond the Channel or across the Tweed.

Obviously, this difficulty is much increased when the canvas is widened to include all Europe, and when the aim is to give the reader a just impression of the general tendencies of a whole age, such an age as, for instance, the sixteenth century, over that vast area. If for a History of the World the old plan be adopted—that of telling the story of each nation separately, yet on lines generally similar, cross references and a copious use of chronological tables become helpful, for they enable the contemporaneity of events to be seen at a glance, and as the history of each nation is being written with a view to that of other nations, the tendencies at work in each can be explained and illustrated in a way which shows their parallelism, and gives to the whole that unity of meaning and tendency which a universal history must constantly endeavour to display. The connection between the progress or decline of different peoples is best understood by setting forth the various forms which similar tendencies take in each. To do this is a hard task when the historian is dealing with the ancient world, or with the world outside Europe even in mediæval and post-mediæval times. For the modern European nations it is easier, because, ever since the spread of Christianity made these nations parts of one great ecclesiastical community, similar forces have been at work upon each of them, and every intellectual movement which has told upon one has more or less told upon the others also.

Unity of Universal History

Such a History of the World may be written on more than one plan, and in the light of more than one general theory of human progress. It might find the central line of human development in the increase of man's knowledge, and in particular of his knowledge of Nature and his power of dealing with her. Or that which we call culture, the comprehensive unfolding and polishing of human faculty and of the power of intellectual creation and appreciation, might be taken as marking the most real and solid kind of progress, so that its growth would best represent the advance of man from a savage to a highly civilised condition. Or if the moral and political sphere were selected as that in which the onward march of man as a social being, made to live in a community, could best be studied, the idea of liberty might be made a pivot of the scheme; for in showing how the individual emerges from the family or the tribe, how first domestic and then also prædial slavery slowly disappears, how institutions are framed under which the will of one ruler or of a small group begins to be controlled, or replaced as a governing force, by the collective will of the members of the

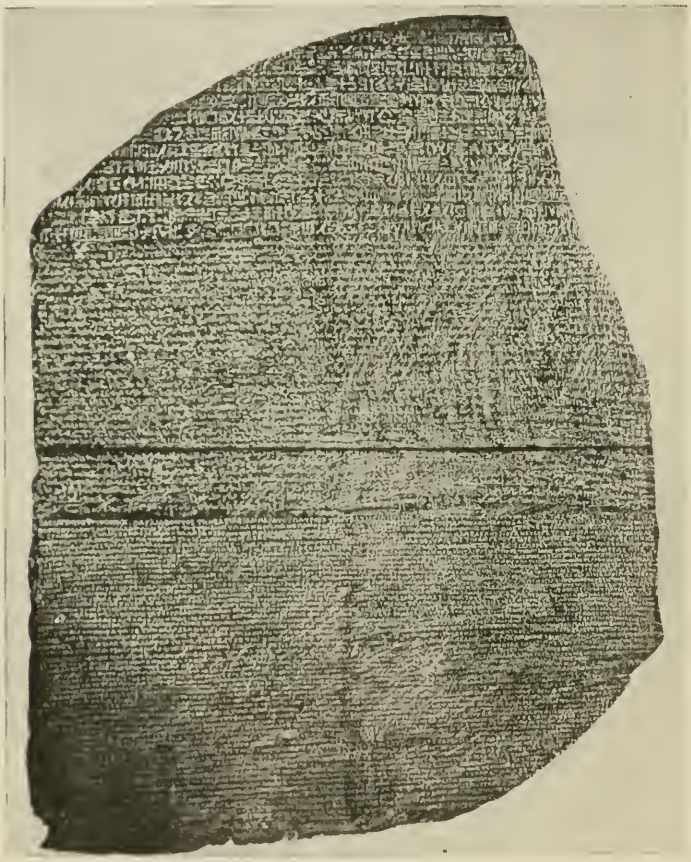
Central Line of Human Development

community, how the primordial rights of each human creature win their way to recognition—in tracing out all these things the history of human society is practically written, and the significance of all political changes is made clear. Another way, again, would be to take some concrete department of human activity, follow it down from its earliest to its latest stages, and group other departments round it. Thus one author might take religion, and in making the history of religion the main thread of his narrative might deal incidentally with the other phenomena which have influenced it or which it has influenced. Or, similarly, another author might take political institutions, or perhaps economic conditions—*i.e.*, wealth, labour, capital, commerce, or, again, the fundamental social institutions, such as the family, and the relations of the ranks and classes in a community, and build up round one or other of these manifestations and embodiments of the creative energy of mankind the general story of man's movement from barbarism to civilisation. Even art, even mechanical inventions, might be similarly handled, for both of these stand in a significant relation to all the rest of the life of each nation and of the world at large.

The Study of Human Society

Nevertheless, no one of these suggested lines on which a universal history might be constructed would quite meet the expectations which the name Universal History raises, because we have become accustomed to think of history as being primarily and pre-eminently a narrative of the growth and development of communities, nations, and states as organised political bodies, seeing that it is in their character as bodies so organised that they come into relation with other nations and states. It is therefore better to follow the familiar plan of dealing with the annals of each race and nation as a distinct entity, while endeavouring to show throughout the whole narrative the part which each fills in the general drama of human effort, conflict, and progress.

Each Race a Distinct Entity



THE MASTER-KEY TO THE HIEROGLYPHICS

The inscribed stone found at Rosetta, in the Nile delta, in 1799, now preserved in the British Museum. It gave the key to the hieroglyphic writings of Egypt. It is a decree of Ptolemy Epiphanes, promulgated at Memphis in B.C. 196, and as it is inscribed in hieroglyphic and in the script of the country as well as in Greek, it thus solved the long standing mystery of the hieroglyphics of the monuments, which before its discovery had been quite unintelligible.

A universal history may, however, while conforming to this established method, follow it out along a special line, which shall give prominence to some one leading idea or principle. Such a line or point of view has been found for the present work in the relation of man to his physical environment—that is to say, to the geographical conditions which have always surrounded him, and always must surround him, conditions



UNEARTHING THE RUINS OF ANCIENT BABYLON IN THE TWENTIETH CENTURY

This photograph illustrates how present-day exploration brings the remains of the ancient wonder cities of Babylonia to light after the sleep of ages. Much valuable knowledge of Babylon has been acquired quite recently as a result of excavations now being carried on under the supervision of English, American, French, and German explorers.

whose power and influence he has felt ever since he appeared upon the globe. This point of view is more comprehensive than any one of those above enumerated. Physical environment has told upon each and every one of the lines of human activity already enumerated that could be taken to form a central line for the writing of a history of mankind. It has influenced not only political institutions and economic phenomena, but also religion, and social institutions, and art, and inventions. No department of man's life has been independent of it, for it works upon man not only materially but also intellectually and morally.

As this is the idea which has governed the preparation of the present book, as it is constructed upon a geographical rather than a purely chronological plan (though, of course, each particular country and nation needs to be treated chronologically), some few pages may properly be devoted here to a consideration of the way in which geography determines history, or, in other words, to an examination of the relations of Nature, inorganic and organic, to the life of man.

MAN'S PLACE IN NATURE'S KINGDOM

THOUGH we are accustomed to contrast man with Nature, and to look upon the world outside ourselves as an object to be studied by man, the conscious and intelligent subject, it is evident, and has been always recognised even by those thinkers who have most exalted the place man holds in the Cosmos, that man is also to be studied as a part of the physical universe. He belongs to the realm of Nature in respect of his bodily constitution, which links him with other animals, and in certain respects with all the phenomena that lie within the sphere of biology.

All creatures on our earth, since they have bodies formed from material constituents, are subject to the physical laws which govern matter; and the life of all is determined, so far as their bodies are concerned, by the physical conditions which foster, or depress, or destroy life. Plants need soil, moisture, sunshine, and certain constituents of the atmosphere. Their distribution over the earth's surface

depends not only upon the greater or less extent to which these things, essential to their existence, are present, but also upon the configuration of the earth's surface (continents and oceans), upon the greater or less elevation above sea level of parts of it, upon such forces as winds and ocean currents (occasionally also upon volcanoes), upon the interposition of arid deserts between moister regions, or upon the flow of great rivers. The flora of each country is the resultant (until man appears upon the scene) of these natural conditions.

We know that some plants are also affected by the presence of certain animals, particularly insects and birds. Similarly, animals depend upon these same conditions which regulate their distribution, partly directly, partly indirectly, or mediately through the dependence of the animal for food upon the plants whose presence or absence these conditions have determined. It would seem that animals, being capable of moving from place to place, and thus of finding conditions suitable for their life, and to some extent of modifying their life to suit the nature around them, are somewhat more independent than plants are, though plants, too, possess powers of adapting themselves to climatic surroundings; and there are some —such, for instance, as our common brake-fern and the grass of Parnassus—which seem able to thrive unmodified in very different parts of the globe.

Natural Conditions of Life

The primary needs of man which he shares with the other animals are an atmosphere which he can breathe, a temperature which he can support, water which he can drink, and food. In respect of these he is as much the product of geographical conditions as are the other living creatures. Presently he superadds another need, that of clothing. It is a sign that he is becoming less dependent on external conditions, for by means of clothing he can make his own temperature and succeed in enduring a degree of cold, or changes from heat to cold, which might otherwise shorten his life. The discovery of fire carries him a long step further, for it not only puts him less at the mercy of low temperatures, but extends the range of his food supplies, and enables him, by procuring better tools and weapons, to obtain his food more easily. We need not pursue his upward course, at every stage of which he finds himself better and still better able to escape from the thraldom of Nature, and to turn to account the forces which she puts at his disposal. But although he becomes more and more independent, more and more master not only of himself, but of her, he is none the less always for many purposes the creature of the conditions with which she surrounds him. He always needs what she gives him. He must always have regard to the laws which he finds operating through her realm. He always finds it the easiest course to obey, and to use rather than to attempt to resist her.

Man the Servant of Nature

Here let me pause to notice a remarkable contrast between the earlier and the later stages of man's relations to Nature. In the earlier stages he lies helpless before her, and must take what she chooses to bestow—food, shelter, materials for clothing, means of defence against the wild beasts, who are in strength far more than a match for him. He depends upon her from necessity, and is better or worse off according as she is more or less generous.

But in the later stages of his progress he has, by accumulating a store of knowledge, and by the development of his intelligence, energy, and self-confidence, raised himself out of his old difficulties. He no longer dreads the wild beasts. They, or such of them as remain, begin to dread him, for he is crafty, and can kill them at a distance. He erects dwellings which can withstand rain and tempest. He irrigates hitherto barren lands and raises abundant crops from them. When he has invented machinery, he produces in an hour clothing better than his hands could formerly have produced in a week. If at any given time he has not plenty of food, this happens only because he has allowed his species to multiply too fast. He is able to cross the sea against adverse winds and place himself in a more fertile soil or under more genial skies than those of his former home. As respects all the primary needs of his life, he has so subjected Nature to himself, that he can make his life what he will.

Man's Advance in Knowledge

All this renders him independent. But he now also finds himself drawn into a new kind of dependence, for he has now come to take a new view of Nature. He perceives in her an enormous storehouse of wealth, by using which he can multiply



Neurdein

THE FIRST WANDERERS OF THE EARTH: TRIBAL MIGRATION IN PREHISTORIC TIMES

From the painting of "Cain" by Ferdinand Cormon

his resources and gratify his always increasing desires to an extent practically unlimited. She provides forces, such as steam and electricity, which his knowledge enables him to employ for production and transport, so as to spare his own physical strength, needed now not so much for effort as for the direction of the efforts of Nature. She has in the forest, and still more beneath her own surface in the form of minerals, the materials by which these forces can be set in motion ; and by using these forces man can, with comparatively little trouble, procure abundance of those materials.

Man the Master of Nature

Thus his relation to Nature is changed. It was that of a servant, or, indeed, rather of a beggar, needing the bounty of a sovereign. It is now that of a master needing the labour of a servant, a servant infinitely stronger than the master, but absolutely obedient to the master so long as the master uses the proper spell. Thus the connection of man with Nature, changed though his attitude be, is really as close as ever, and far more complex. If his needs had remained what they were in his primitive days—let us say, in those palæolithic days which we can faintly adumbrate to ourselves by an observation of the Australian or Fuegian aborigines now—he would have sat comparatively lightly to Nature, getting easily what he wanted, and not caring to trouble her for more. But his needs—that is to say, his desires, both his physical appetites and his intellectual tastes, his ambitions and his fondness for comfort, things that were once luxuries having become necessaries—have so immeasurably expanded that, since he asks much more from Nature, he is obliged to study her more closely than ever.

Thus he enters into a new sort of dependence upon her, because it is only by understanding her capacities and the means of using them that he can get from her what he wants. Primitive man was satisfied if he could find spots where the trees gave edible fruit, where the sun was not too hot, nor the winds too cold, where the beasts easy of capture were abundant, and no tigers or pythons made the forest terrible. Civilised man has more complex problems to deal with, and wider fields to search. The study of Nature is not only still essential to him, but really more essential than ever. His life and action are conditioned by her. His industry and his commerce are directed by her to certain spots. That which she has to give is still, directly or indirectly, the source of strife, and a frequent cause of war. As men fought long ago with flint-headed arrows for a spring of water or a coconut grove, so they fight to-day for mineral treasures imbedded in the soil. It is mainly by Nature that the movements of emigration and the rise of populous centres of industry are determined.

Man's New Relations to Nature

Though Nature still rules for many purposes and in many ways the course of human affairs, the respective value of her various gifts changes from age to age, as man's knowledge and power of turning them to account have changed. The things most prized by primitive man are not those which semi-civilised man chiefly prized, still less are they those most sought for now.

In primitive times the spots most attractive, because most favourable to human life, were those in which food could be most easily and safely obtained from fruit-bearing trees or by the chase, and where the climate was genial enough to make clothing and shelter needless, at least during the greater part of the year. Later, when the keeping of cattle and tillage had come into use, good pastures and a fertile soil in the valley of a river were the chief sources of material well-being. Wild beasts were less terrible, because man was better armed ; but as human enemies were formidable, regions where hills and rocks facilitated defence by furnishing natural strongholds had their advantages.

Using Natural Wealth

Still later, forests came to be recognised as useful for fuel, and for carpentry and shipbuilding. Mineral deposits, usually found in hilly or mountainous districts, became pre-eminently important sources of wealth ; and rivers were valued as highways of commerce and as sources of motive power by the force of their currents. To the Red Indians of the Ohio valley the places which were the most attractive camping-grounds were those whither the buffaloes came in vast herds to lick the rock salt exposed in the sides of the hills. It is now not the salt-licks, but the existence of immense deposits of coal and iron, that have determined the growth of huge communities in those regions whence the red

man and the buffalo have both vanished. England was once, as New Zealand is now, a great wool-growing and wool-exporting country, whereas she is to-day a country which spins and weaves far more wool than she produces.

So, too, the influence of the sea on man has changed. There was a time when towns were built upon heights some way off from the coast, because the sea was the broad high road of pirates who swooped down upon and pillaged the dwellings of those who lived near it. Now that the sea is safe, trading cities spring up upon its margin, and sandy tracts worthless for agriculture have gained an unexpected value as health resorts, or as places for playing games, places to which the inhabitants of inland districts flock in summer, as they do in England and Germany, or in winter, as they do on the Mediterranean coasts of France. The Greeks, when they began to compete with the Phœnicians in maritime commerce, sought for small and sheltered inlets in which their tiny vessels could lie safely—such inlets as Homer describes in the Odyssey, or as the Old Port of Marseilles, a city originally a colony from the Ionian Phocæa. Nowadays these pretty little rock harbours are useless for the large ships which carry our trade. The Old Port of Marseilles is abandoned to small coasters and fishing-boats, and the ocean steamers lie in a new harbour which is protected, partly by outlying islands, partly by artificial works.

Ancient Harbours and Modern

So, too, river valleys, though still important as highways of traffic, are important not so much in respect of water carriage as because they furnish the easiest lines along which railways can be constructed. The two banks of the Rhine, each traversed by a railroad, carry far more traffic than the great stream itself carried a century ago; and the same remark applies to the Hudson. All these changes are due to the progress of invention, which may give us fresh changes in the future not less far-reaching than those the past has seen. Mountainous regions with a heavy rainfall, such as Western Norway or the coast of the Pacific in Washington and British Columbia, may, by the abundance of water power which they supply, which can be transmuted into electrical energy, become sources of previously unlooked-for wealth, especially if some cheap means can be devised of conveying electricity with less wastage in transmission than is at present incurred. Within the last few years considerable progress in this direction has been made. Should effective and easily applicable preventives against malarial fever be discovered, many districts now shunned, because dangerous to the life of white men, may become the homes of flourishing communities. The discovery of cinchona bark in the seventeenth century affected the course of events, because it provided a remedy against a disease that had previously baffled medical skill. If quinine had been at the disposal of the men of the Middle Ages, not only might the lives of many great men, as for instance of Dante, have been prolonged, but the Teutonic emperors would have been partially relieved of one of the chief obstacles which prevented them from establishing permanent control over their Italian dominions. Rome and the Papal power defended themselves against the hosts of the Franconian and Hohenstaufen sovereigns by the fevers of the Campagna more effectively than did the Roman people by their arms, and almost as effectively as did the Popes by their spiritual thunders.

The World-Importance of Medicine

Bearing in mind this principle, that the gifts of Nature to man not only increase, but also vary in their form, in proportion and correspondence to man's capacity to use them, and remembering also that man is almost as much influenced by Nature when he has become her adroit master as when she was his stern mistress, we may now go on to examine more in detail the modes in which her influence has told and still tells upon him.

It has long been recognised that Nature must have been the principal factor in producing, that is to say, in differentiating, the various races of mankind as we find them differentiated when our records begin. How this happened is one of the darkest problems that history presents. By what steps and through what causes did the races of man acquire these diversities of physical and intellectual character which are now so marked and seem so persistent? It has been suggested that some of these diversities may date back to a time when man, as what is called a distinct species, had

The Problem of Racial Distinctions

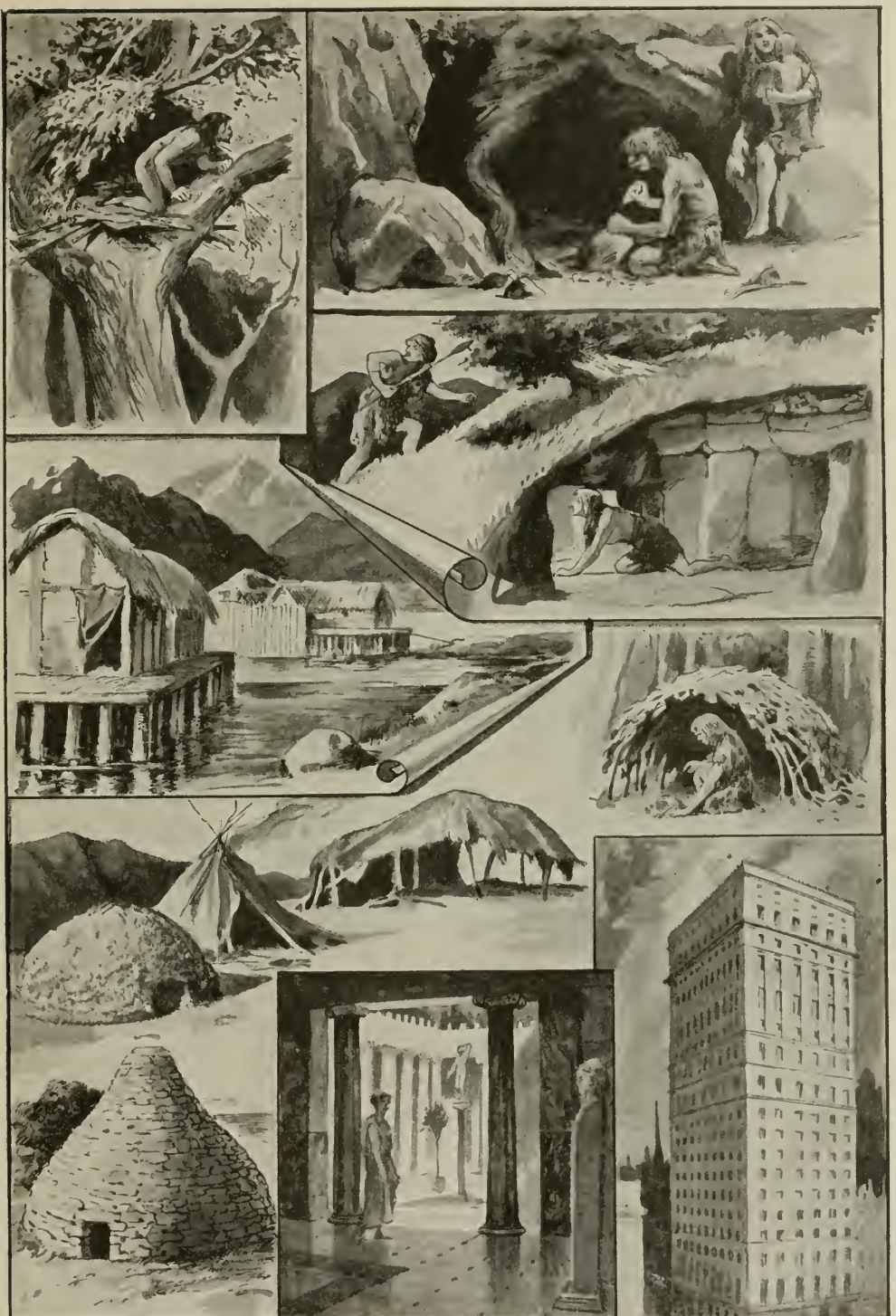
scarcely begun to exist. Assuming the Darwinian hypothesis of the development of man out of some pithecoid form to be correct—and those who are not themselves scientific naturalists can of course do no more than provisionally accept the conclusions at which the vast majority of scientific naturalists have arrived—it is conceivable that there may have been unconnected developments of creatures from intermediate forms into definitely human forms in different regions, and that some of the most marked types of humanity may therefore have had their first rudimentary and germinal beginning before any specifically human type had made its appearance. This, however, is not the view of the great majority of naturalists. They appear to hold that the passage either from some anthropoid apes, or from some long since extinct common ancestor of man and the existing anthropoid apes — this latter alternative representing what is now the dominant view — did not take place through several channels (so to speak), but through one only, and that there was a single specifically human type which subsequently diverged into the varieties we now see.



TREE DWELLERS IN THE TWENTIETH CENTURY

We must remember that such terms as "The Stone Age," "The Bronze Age," and so forth, are only loosely applied. The ages so called did not close at certain periods. There are races now living in all the conditions of these past ages. This photograph, for example, shows the actual tree dwellings of the Papuans in New Guinea to-day — one of the most primitive forms of human habitation.

If this be so, it is plain that climate, and the conditions of life which depend upon climate, soil, and the presence of vegetables and of other animals besides man, must have been the forces which moulded and developed those varieties. From a remote antiquity, everybody has connected the dark colour of all, or nearly all, the races inhabiting the torrid zone with the power of the sun; and the fairer skin of the races of the temperate and arctic zones with the comparative feebleness of his rays in those regions. This may be explained on Darwinian principles by supposing that the darker varieties were found more capable of supporting the fierce heat of the tropics. What explanation is to be given of the other characteristics of the negro and negroid races, of the usually frizzled hair, of the peculiar nose and jaw, and so forth, is a question for the naturalist rather than for the historian. Although climate and food may be the chief factors in differentiation, the nature of the process is, as indeed is the case with the species of animals generally, sometimes very obscure. Take an instance from three African races which, so far as we can tell, were formed under similar climatic conditions—the Bushmen, the Hottentots, and the Bantu, the race including those whom we call Kaffirs. Their physical aspect and colour are different. Their size and the structure of their bodies are different. Their mental



THE HABITATIONS OF MAN IN ALL AGES OF THE WORLD'S HISTORY

At first man built twig huts in trees, but becoming better matched with his animal foes he took to caves and underground habitations. Our illustration of the latter shows a section through the soil. Lake dwellings marked a distinct advance. Other varieties of primitive habitations are the leaf hut, the tents of skin, the mud hut, and the beehive hut of stone. Roman villas are still models of beauty. American "skyscrapers" are peculiar to our time; but all early forms of dwellings, while marking progress, have existed contemporaneously throughout history.

aptitudes are different; and one of the oddest points of difference is this, that whereas the Bushmen are the least advanced, intellectually, morally, and politically, of the three races, as well as the physically weakest, they show a talent for drawing which is not possessed by the other two.

Is the Race Mystery Insoluble?

In this case there is, of course, a vast unknown foretime during which we may imagine the Bantu race, probably originally formed in a region other than that which it now occupies (and under more favourable conditions for progress), to have become widely differentiated from those which are now the lower African races. We still know comparatively little about African ethnography. Let us, therefore, take another instance in which affinities of language give ground for believing that three races, whose differences are now marked, have diverged from a common stock. So far as language goes, the Celts, the Teutons, and the Slavs, all speaking Indo-European tongues, may be deemed to be all nearly connected in origin. They are marked by certain slight physical dissimilarities, and by perhaps rather more palpable dissimilarities in their respective intellectual and emotional characters. But so far as our knowledge goes, all three have lived for an immensely long period in the colder parts of the temperate zone, under similar external conditions, and following very much the same kind of pastoral and agricultural life. There is nothing in their environment which explains the divergences we perceive; so the origin of these divergences must apparently be sought either in admixture with other races or in some other historical causes which are, and will for ever remain, in the darkness of a recordless past.

Mixing of the World's Peoples

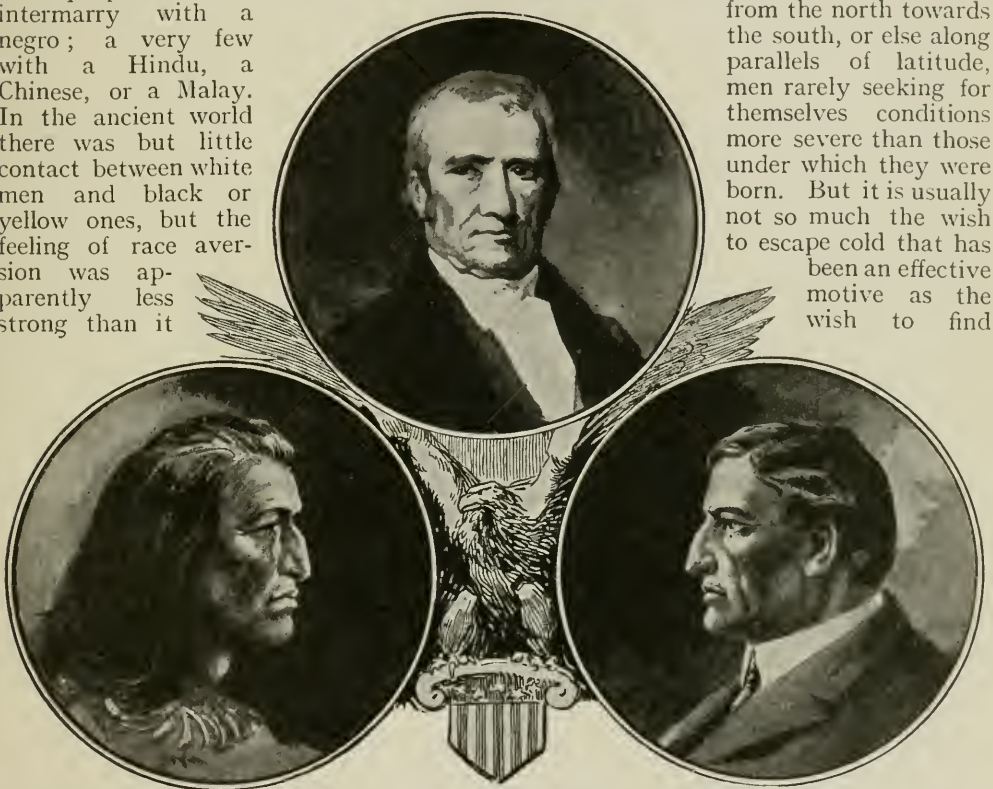
How race admixture works, and how it forms a new definite character out of diverse elements, is a subject which anyone may find abundant materials for studying in the history of the last two thousand years. Nearly every modern European people has been so formed. The French, the Spaniards, and the English are all the products of a mixture, in different proportions, of at least three elements—Iberian (to use a current name), Celts, and Teutons, though the Celtic element is probably comparatively small in Spain, and the Teutonic comparatively small both in Spain and in Central and Southern France. No small part of those who to-day speak German and deem themselves Germans must be of Slavonic stock. Those who to-day speak Russian are very largely of Finnish, to some small extent of Tartar, blood. The Italians probably spring from an even larger number of race-sources, without mentioning the vast number of slaves brought from the East and the North into Italy between B.C. 100 and A.D. 300. In the cases of Switzerland and Scotland the process of fusion is not yet complete. The Celto-Burgundian Swiss of Neuchatel is still different from the Allemanian Swiss of Appenzell; as the Anglo-Celt of Fife is different from the Ibero-Celt of the Outer Hebrides. But in both these cases there is already a strong sense of national unity, and in another three hundred years there may have arisen a single type of character.

The Unique Case of Iceland

An interesting and almost unique case is furnished by Iceland, where isolation under peculiar conditions of climate, food, and social life has created a somewhat different type both of body and of mental character from that of the Norwegians, although so far as blood goes the two peoples are identical, Iceland having been colonised from Western Norway a thousand years ago, and both Icelanders and Norwegians having remained practically unmixed with any other race—save that some slight Celtic infusion came to Iceland with those who migrated thither from the Norse settlements in Ireland, Northern Scotland, and the Hebrides—since the separation took place. But by far the most remarkable instance of race admixture is that furnished in our own time by the United States of North America, where a people of predominantly English stock (although there were in the end of the eighteenth century a few descendants of Dutchmen, with Germans, Swedes, and Ulster Irishmen, in the country) has within the last sixty years received additions of many millions of Celts, of Germans and Scandinavians, and of various Slavonic races. At least a century must elapse before it can be seen how far this infusion of new blood will change the type of American character as it stood in 1840.

There are, however, two noteworthy differences between modern race fusions

and those which belong to primitive times. One is that under modern conditions the influence of what may be called the social and political environment is probably very much greater than it was in early times. The American-born son of Irish parents is at forty years of age a very different creature from his cousin on the coast of Mayo. The other is that in modern times differences of colour retard or forbid the fusion of two races. So far as the Teutonic peoples are concerned, no one will intermarry with a negro; a very few with a Hindu, a Chinese, or a Malay. In the ancient world there was but little contact between white men and black or yellow ones, but the feeling of race aversion was apparently less strong than it is now, just as it was much less strong among the Spaniards and Portuguese in the sixteenth and seventeenth centuries than it is among Americans or Englishmen to-day. It is less strong even now among the so-called "Latin races;" and as regards the Anglo-Americans, it is much less strong towards the Red Indians than towards negroes.



THE REMARKABLE INFLUENCE OF ENVIRONMENT ON PHYSICAL APPEARANCE

Mr. Bryce points out that the physical features of a people are determined chiefly by their environment. These illustrations show (at top) a typical English settler in the old Colonial days of America, a native Red Indian (left) and a typical American of to-day (right). Without any intermingling of red men and white, the modern American, thanks to climatic conditions, resembles the Red Indian far more closely than he does his own ancestors of the Colonial days.

As Nature must have been the main agent in the formation of the various races of mankind from a common stock, so also Nature has been the chief cause of their movements from one part of the earth to another, these movements having been in their turn a potent influence in the admixture of the races. Some geographers have alleged climate—that is to say, the desire of those who inhabit an inclement region to enjoy a softer and warmer air—as a principal motive which has induced tribes of nations to transfer themselves from one region to another.

It is no doubt true that the direction of migrations has almost always been either from the north towards the south, or else along parallels of latitude, men rarely seeking for themselves conditions more severe than those under which they were born. But it is usually not so much the wish to escape cold that has been an effective motive as the wish to find more and better food, since this means an altogether easier life. Scarcity of the means of subsistence, which is, of course, most felt when population is increasing, has operated more frequently and powerfully than any other cause in bringing on displacements of the races of man over the globe. The movement of the primitive Aryans into India from the plateaux of West Central Asia, probably also the movement of the races which speak Dravidian languages from South Central Asia into Southern India, and probably

also the mighty descent, in the fourth and fifth centuries A.D., of the Teutonic races from the lands between the Baltic and the Alps into the Roman Empire, had this origin.

The Colonising Impulse

In more advanced states of society a like cause leads the surplus population of a civilised state to overflow into new lands, where there is more space, or the soil is more fertile. Thus the inhabitants of South-western Scotland, partly, no doubt, at the suggestion of their rulers, crossed over into Ulster, where they occupied the best lands, driving the aboriginal Celts into the rougher and higher districts, where their descendants remain in the glens of Antrim, and in the hilly parts of Down. Derry, and Tyrone. Thus the men of New England moved out to the West and settled in the Mississippi Valley, while the men of Virginia crossed the Alleghanies into Kentucky. Thus the English have colonised Canada and Australia and New Zealand and Natal. Thus the Russians have spread out from their ancient homes on the upper courses of the Dnieper and the Volga all over the vast steppes that stretch to the Black Sea and the Caucasus, as well as into the rich lands of South-western Siberia. Thus the surplus peasantry of Germany has gone not only to North America, but also to Southern Brazil and the shores of the Rio de la Plata.

In another form it is the excess of population over means of subsistence at home that has produced the remarkable outflow of the Chinese through the Eastern Archipelago and across the Pacific into North America, and that has carried the Japanese to the Hawaiian Islands. And here we touch another cause of migration which is indirectly traceable to Nature—namely, the demand in some countries for more labour or cheaper labour than the inhabitants of the country are able or willing to supply. Sometimes this demand is attributable to climatic causes. The Spaniards and Portuguese and English in the New World were unfitted by their physical constitutions for out-of-door labour under a tropical sun. Hence they imported negroes during the sixteenth and two following centuries in such numbers that there are now about eight millions of coloured people in the United States alone, and possibly (though no accurate figures exist) as many more in the West Indies and South America. To a much smaller extent the same need for foreign labour has recently brought Indian coolies to the shores of the Caribbean Sea, and to the hottest parts of Natal, as it brings Polynesians to the sugar plantations of Northern Queensland.

The Need of Native Labour

Two other causes which have been potent in bringing about displacements and mixtures of population are the desire for conquest and plunder and the sentiment of religion. But these belong less to the sphere of Nature than to that of human passion and emotion, so that they scarcely fall within this part of our inquiry, the aim of which has been to show how Nature has determined history by inducing a shifting of races from place to place. From this shifting there has come the contact of diverse elements, with changes in each race due to the influence of the other, or perhaps the absorption of one in the other, or the development of something new out of both. In considering these race movements we have been led from the remote periods in which they began, and of which we know scarcely anything except from archæological and linguistic data, to periods within the range of authentic history. So we may go on to see how Nature has determined the spots in which the industry of the more advanced races should build up the earliest civilisations, and the lines along which commerce, a principal agent in the extension of civilisation, should proceed to link one race with another.

What Determines Race Movements

It was long since observed that the first homes of a dense population and a highly developed civilisation lay in fertile river valleys, such as those of the Lower Nile, the Euphrates, the Tigris, the Ganges, the Yang-tse-kiang. All these are situate in the hotter parts of the temperate zone; all are regions of exceptional fertility. The soil, especially when tillage has become general, is the first source of wealth; and it is in the midst of a prosperous agricultural population that cities spring up where handicrafts and the arts arise and flourish. The basins of the Lower Nile and of the Lower Euphrates and Tigris are (as respects the West Asiatic and Mediterranean world) the fountain-heads of material, military, and artistic civilisation. From them it spreads over the



THE MERCHANT MARINERS OF THE ANCIENT WORLD

The earliest agents in the diffusion of trades and the arts were the Phœnicians, who from their great cities Sidon, and Carthage conducted a sea-borne traffic with lands as remote as England, and whose ad sailors, despite the smallness of their vessels, are believed even to have succeeded in rounding the Cape of G

adjacent countries and along the coasts of Europe and Africa. On the east, Egypt and Mesopotamia are cut off by the deserts of Arabia and Eastern Persia from the perhaps equally ancient civilisation of India, which again is cut off by lofty and savage mountains from the very ancient civilisation of China. Nature forbade intercourse between these far eastern regions and the West Asian peoples, while on the other hand Nature permitted Egypt, Phœnicia, and Babylon to influence and become teachers of the peoples of Asia Minor and of the Greeks on both sides of the Ægean Sea. The isolation and consequent independent development of India and of China is one of the most salient and significant facts of history. It was not till the end of the fifteenth century, when the Portuguese reached the Malabar coast, that the Indian peoples began to come into the general movement of the world; for the expedition of Alexander the Great left hardly any permanent result, except upon Buddhist art, and the conquests of Mahmud of Ghazni opened no road to the East from the Mediterranean West. Nor did China, though visited by Italian travellers in the thirteenth century, by Portuguese traders and Jesuit missionaries in the sixteenth and seventeenth, come into effective contact with Europe till near our own time.

Isolation of Eastern Peoples

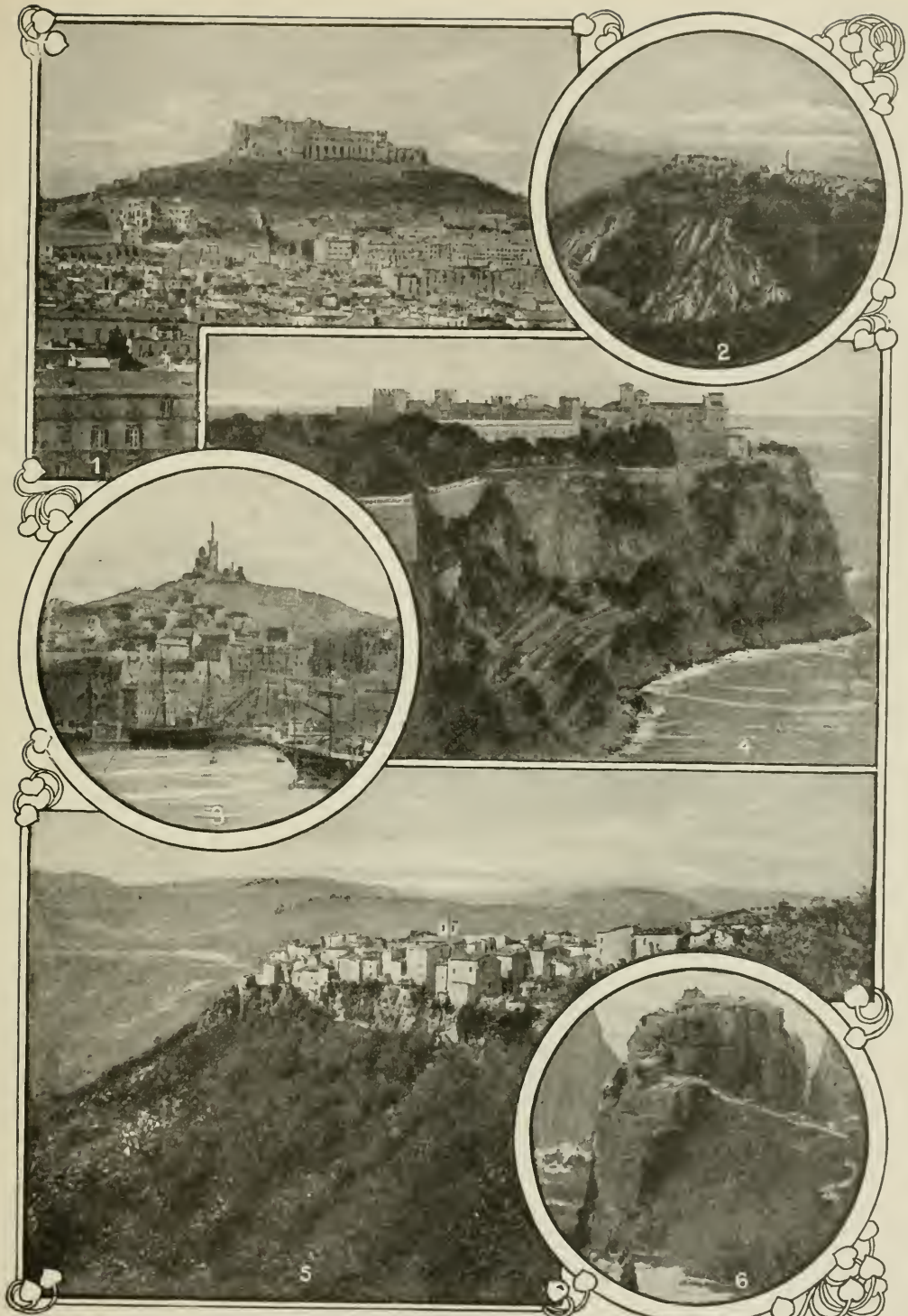
As the wastes of barren land formed an almost impassable eastern boundary to the West Asian civilisations, so on the west the expanse of sea brought Egypt and to a less extent Assyria (through Phœnicia) into touch with all the peoples who dwelt on the shores of the Mediterranean. The first agents in the diffusion of trade and the arts were the Phœnicians, established at Tyre, Sidon, and Carthage. The next were the Greeks. For more than two thousand years, from B.C. 700 onwards, the Mediterranean is practically the centre of the history of the world, because it is the highway both of commerce and of war. For seven hundred years after the end of the second century B.C., that is to say, while the Roman Empire remained strong, it was also the highway of civil administration. The Saracen conquests of the seventh century cut off North Africa and Syria from Europe, checked transmarine commerce, and figcreated afresh the old opposition of East and West in which a thousand years earlier Herodotus had found the main thread of world history. But it was not till after the discovery of America that the Mediterranean began to yield to the Atlantic its primacy as the area of sea power and sea-borne trade.

Bordered by far less fertile and climate-favoured countries, and closed to navigation during some months of winter, the Baltic has always held a place in history far below that of the Mediterranean. Yet it has determined the relations of the North European states and peoples. So, too, the North Sea has at one time exposed Britain to attack from the Danish and Norwegian lords of the sea, and at other times protected her from powerful continental enemies. It may indeed be said that in surrounding Europe by the sea on three sides, Nature has drawn the main lines which the course of events on this smallest but most important of the continents has had to follow.

Influence of the Seas in History

Of the part which the great bodies of water have played, of the significance in the oceans of mighty currents like the Gulf Stream, the Polar Current, the Japan Current, the Mozambique Current, it would be impossible to speak within reasonable compass. But two remarks may be made before leaving this part of the subject. One is that man's action in cutting through an isthmus may completely alter the conditions as given by Nature. The Suez Canal has of late years immensely enhanced the importance of the Mediterranean, already in some degree restored by the decay of Turkish power, by the industrial revival of Italy, and by the French conquests in North Africa. The cutting of a canal at Panama will change the relations of the seafaring and fleet-owning nations that are interested in the Atlantic and the Pacific. And the other remark is that the significance of a maritime discovery, however great at first, may become still greater with the lapse of time. Magellan, in his ever memorable voyage, not only penetrated to and crossed the Pacific, but discovered the Philippine Islands, and claimed them for the monarch who had sent him forth. His appropriation of them for the Crown of Spain, to which during these three centuries and a half they have brought no benefit, has been the cause which has

Magellan and American Politics



HOW NATURE DETERMINES THE SITES OF CITIES

Most towns and communities founded more than 300 years ago were on easily defensible hills, by the side of navigable rivers, or inlets of the sea. Our illustrations show (1) Naples, (2) Bonsuna, (3) Old Port and hill of Marseilles, (4) Monaco, (5) St. Cézaire, and (6) the Greek Monastery of St. Balaam.

Photos. by Frith and Underwood & Underwood



THE SHIFTING OF THE CENTRE OF THE WORLD'S COMMERCE

These two maps, which have been very carefully prepared from the most reliable authorities, indicate at a glance the relative importance of the Mediterranean and the Atlantic as highways of commerce in the time of Julius Cæsar, B.C. 102–44.

led the republic of the United States to depart from its traditional policy of holding to its own continent by taking them as a prize—a distant and unexpected prize—of conquest.

A few words may suffice as to what Nature has done towards the formation of nations and States by the configuration of the surface of the dry land—that is to say, by mountain chains and by river valleys. The only natural boundaries, besides seas, are mountains and deserts. Rivers, though convenient frontier lines for the politician or the geographer, are not natural boundaries, but rather unite than dissever those who dwell on their opposite banks. Thus the great natural boundaries in Asia have been the deserts of Eastern



HOW THE MEDITERRANEAN HAS GIVEN PLACE TO THE ATLANTIC

Here is the contrast to the opposite page. In our time the Atlantic has become the centre of the world's commerce, and the Mediterranean has sunk in importance. It would be almost deserted but for the routes to India via the Suez Canal.

Persia, of Turkestan, and of Northern Arabia, with the long Himalayan chain and the savage ranges apparently parallel to the Irawadi River, which separate the easternmost corner of India and Burmah from South-Western China. To a less extent the Altai and Thian Shan, and, to a still smaller extent, the Taurus in Eastern Asia Minor, have tended to divide peoples and States. The Caucasus, which fills the space between two great seas, has been at all times an extremely important factor in history, severing the nomad races of Scythia from the more civilised and settled inhabitants of the valleys of the Phasis and the Kura. Even to-day, when the

Tsar holds sway on both sides of this chain, it constitutes a weakness in the position of Russia, and it helps to keep the Georgian races to the south from losing their identity in the mass of Russian subjects.

Without the Alps and the Pyrenees, the annals of Europe must have been entirely different. The Alps, even more than the Italian climate, proved too much for the Romano-Germanic Emperors of the Middle Ages, who tried to rule both to the north and to the south of this wide mountain region. The Pyrenees have not only kept in existence the Basque people, but have repeatedly frustrated the attempts of monarchs to dominate both France and Spain. The mass of high moorland country which covers most of the space between the Solway Firth and the lower course of the Tweed has had something to do with the formation of a Scottish nation out of singularly diverse elements. The rugged mountains of Northern and Western Scotland, and the similar though less extensive hill country of Wales, have enabled Celtic races to retain their language and character in both these regions.

The Place of Mountains in History

On the other hand, the vast open plains of Russia have allowed the Slavs of the districts which lie round Novgorod, Moscow, and Kiev to spread out among and Russify the Lithuanian and Finnish, to some extent also the Tartar, races, who originally held by far the larger part of that area. So, too, the Ural range, which, though long, is neither high nor difficult to pass, has opposed no serious obstacle to the overflow of population from Russia into Siberia. That in North America the Alleghanies have had a comparatively slight effect upon political history, although they did for a time arrest the march of colonisation, is due partly to the fact that they are a mass of comparatively low parallel ranges, with fertile valleys between, partly to the already advanced civilisation of the Anglo-Americans of the Atlantic seaboard, who found no great difficulty in making their way across, against the uncertain resistance of small and non-cohesive Indian tribes. A far more formidable natural barrier is formed between the Mississippi Valley and the Pacific slope by the Rocky Mountains, with the deserts of Arizona, Utah, Nevada, and Idaho. But the discovery of steam power has so much reduced the importance of this barrier that it does not seriously threaten the maintenance of a united American republic.

What Steam-power has Done

In one respect the New World presents a remarkable contrast to the Old. The earliest civilisations of the latter seem to have sprung up in fertile river valleys. Those of the former are found not on the banks of streams like the Nile or Euphrates, but on elevated plateaux, where the heat of a tropical sun is mitigated by height above sea level. It was in the lofty lake basin of Tezcuco and Mexico, and on the comparatively level ground which lies between the parallel ranges of the Peruvian and Bolivian Andes, that American races had reached their finest intellectual development, not in the far richer, but also hotter and less healthy river valleys of Brazil, or (unless we are to except Yucatan) on the scorching shores of the Caribbean Sea. Nature was in those regions too strong for man, and held him down in savagery.

In determining the courses of great rivers, Nature has determined the first highways of trade and fixed the sites of many cities. Nearly all the considerable towns founded more than three centuries ago owe their origin either to their possessing good havens on the sea-coast, or to the natural strength of their position on a defensible hill, or to their standing close to a navigable river. Marseilles, Alexandria, New York, Rio de Janeiro, are instances of the first; Athens, Edinburgh, Prague, Moscow, of the second; Bordeaux, Cologne, New Orleans, Calcutta, of the third. Rome and London, Budapest, and Lyons combine the advantages of the second with those of the third. This function of rivers in directing the lines of commerce and the growth of centres of population has become much less important since the construction of railroads, yet population tends to stay where it has been first gathered, so that the fluviatile cities are likely to retain their preponderance. Thus the river is as important to the historian as is the mountain range or the sea.

How Nature fixes Sites of Cities

From the physical features of a country it is an easy transition to the capacities of the soil. The character of the products of a region determines the numbers of its inhabitants and the kind of life they lead. A land of forests breeds hunters or lumbermen; a land of pasture, which is too rough or too arid or too sterile for tillage, supports shepherds or herdsmen probably more or less nomadic. Either kind of land

supports inhabitants few in proportion to its area. Fertile and well-watered regions rear a denser, a more settled, and presumably a more civilised population. Norway and Tyrol, Tibet and Wyoming, and the Orange River Colony, can never become so densely peopled as Bengal or Illinois or Lombardy, yet the fisheries of its coast and the seafaring energy of its people have sensibly increased the population of Norway. Thus he who knows the climate and the productive capacity of the soil of any given country can calculate its prospects of prosperity. Political causes may, of course, intervene. Asia Minor and the Valley of the Euphrates, regions once populous and flourishing, are now thinly inhabited and poverty-stricken because they are ruled by the Turks.

Climate and Commerce

But these cases are exceptional. Bengal and Lombardy and Egypt have supported large populations under all kinds of government. The products of each country tend, moreover, to establish definite relations between it and other countries, and do this all the more as population, commerce, and the arts advance. When England was a great wool-growing and wool-exporting country, her wool export brought her into close political connection with the wool-manufacturing Flemish towns. She is now a cotton-manufacturing country, needing cotton which she cannot grow at all, and consuming wheat which she does not grow in sufficient quantities. Hence she is in close commercial relations with the United States on one side, which give her most of her cotton and much of her wheat, and with India, from which she gets both these articles, and to which she exports a large part of her manufactured cotton goods.

So Rome, because she needed the corn of Egypt, kept Egypt under a specially careful administration. The rest of her corn came from Sicily and North Africa, and the Vandal conquest of North Africa dealt a frightful blow to the declining Empire. In these cases the common interest of sellers and buyers makes for peace, but in other cases the competition of countries desiring to keep commerce to themselves occasions war. The Spanish and Dutch fought over the trade to India in the earlier part of the seventeenth century, when the Portuguese Indies belonged to Spain, as the English and French fought in the eighteenth. And a nation, especially an insular nation, whose arable soil is not large enough or fertile enough to provide all the food it needs, has a powerful inducement either to seek peace or else to be prepared for maritime war. If such a country does not grow enough corn or meat at home, she must have a navy strong enough to make sure that she will always be able to get these necessaries from abroad. Attica did not produce all the grain needed to feed the Athenians, so they depended on the corn ships which came down from the Euxine, and were practically at the mercy of an enemy who could stop those ships.

Common Needs make for Peace

Of another natural source of wealth, the fisheries on the coast of a country, no more need be said than that they have been a frequent source of quarrels and even of war. The recognition of the right of each state to the exclusive control and enjoyment of the sea for three miles off its shores has reduced, but not entirely removed, the causes of friction between the fishermen of different countries.

Until recently, the surface of the soil was a far more important source of wealth than was that which lies beneath the surface. There were iron mines among the Chalybes on the Asiatic coast of the Euxine in ancient times ; there were silver mines here and there, the most famous being those at Laurium, from which the Athenians drew large revenues, gold mines in Spain and Dacia, copper mines in Elba, tin mines in the south-west corner of Britain. But the number of persons employed in mining and the industries connected therewith was relatively small both in the ancient world and, indeed, down till the close of the eighteenth century. The immense development of coal-mining and of iron-working in connection therewith has now doubled, trebled, or quadrupled the population of large areas in Britain, Germany, France, Belgium, and the United States, adding vastly to the wealth of these countries and stimulating in them the growth of many mechanical arts. This new population is quite different in character from the agricultural peasantry who in earlier days formed the principal substratum of society. Its appearance has changed the internal politics of these countries, disturbing the old balance of forces and accelerating the progress of democratic principles.

Minerals and Civilisation



THE PLACE OF MOUNTAINS IN HISTORY: NATURE'S PARRIERS TO MAN'S EXPANSION

Without the Alps the annals of Europe must have been entirely different. The mountains were too much for the emperors of the Middle Ages, although Hannibal, the great Carthaginian general, succeeded in crossing them two centuries before Christ, a feat which Napoleon repeated 2,000 years later. Our engraving illustrates Napoleon crossing the Alps.

Nor have minerals failed to affect the international relations of peoples and States. It was chiefly for the precious metals that the Spaniards explored the American Continent and conquered Mexico and Peru. It was for the sake of capturing the ships bringing those metals back to Europe that the English sea-rovers made their way to the American coasts and involved England in wars with Spain. It was the discovery in 1885 of extensive auriferous strata unexampled in the certainty of their yield that drew a swarm of foreign immigrants into the Transvaal, whence arose those difficulties between them and the Dutch inhabitants previously established there which, coupled with the action of the wealthy owners of the mines, led at last to the war of 1899 between Britain and the two South African Republics.

The productive capacity of a country is, however, in one respect very different from those great physical features—such as temperature, rainfall, coast configuration, surface character, geological structure, and river system—which have been previously noted. Those features are permanent qualities which man can affect only to a limited extent, as when he reduces the rainfall a little by cutting down forests, or increases it by planting them, or as when he unites an isle, like that of Cadiz, to the mainland, cuts through an isthmus, like that of Corinth, or clears away the bar at a river mouth, as that of the Mississippi has been cleared.

Man's Fight with Nature

But the natural products of a country may be exhausted and even the productive capacity of its soil diminished. Constant tillage, especially if the same crop be raised and no manure added, will wear out the richest soils. This has already happened in parts of Western America. Still the earth is there ; and with rest and artificial help it will recover its strength. But timber destroyed cannot always be induced to grow again, or at least not so as to equal the vigour of primeval forests. Wild animals, once extirpated, are gone for ever. The buffalo and beaver of North America, the beautiful lynxes of South Africa and some of its large ruminants, are irrecoverably lost for the purposes of human use, just as much as the dinornis, though a few individuals may be kept alive as specimens. So, too, the mineral resources of a country are not only consumable, but obviously irreplaceable. Already some of the smaller coalfields of Europe have been worked out, while in others it has become necessary to sink much deeper shafts, at an increasing cost. There is not much tin left in Cornwall, not much gold in the gravel deposits of Northern California. The richest known goldfield of the world, that of the Transvaal Witwatersrand, can hardly last more than thirty or forty years. Thus in a few centuries the productive capacity of many regions may have become quite different from what it is now, with grave consequences to their inhabitants.

Exhausting the Mineral Wealth

These are some of the ways in which Nature affects those economic, social, and political conditions of the life of man the changes in which make up history. As we have seen, that which Nature gives to man is always the same, in so far as Nature herself is always the same—an expression which is more popular than accurate, for Nature herself—that is to say, not the laws of Nature, but the physical environment of man on this planet—is in reality always changing. It is true that this environment changes so slowly that a thousand years may be too short a period in which man can note and record some forms of change—such, for instance, as that by which the temperature of Europe became colder during the approach of the glacial period and warmer during its recession—while ten thousand years may be too short to note any diminution in the heat which the sun pours upon the earth, or in the store of oxygen which the earth's atmosphere holds.

But as we have also seen, the relation to man of Nature's gifts differs from age to age as man himself becomes different, and as his power of using these gifts increases, or his need of them becomes either less or greater. Every invention alters those relations. Water power became less relatively valuable when steam was applied to the generation of motive force. It has become more valuable with the new applications of electricity. With the discovery of mineral dyes, indigo and cochineal are now less wanted than they were. With the invention of the pneumatic tyre for bicycles and carriages, caoutchouc is more wanted. Mountains have become, since the making of railways, less of an obstacle to trade

Progress of Modern Invention

than they were, and they have also become more available as health resorts. Political circumstances may interfere with the ordinary and normal action of natural phenomena. A race may be attracted to or driven into a region for which it is not physically suited, as Europeans have gone to the West Indies, and negroes were once carried into New York and Pennsylvania. The course of trade which Nature prescribes between different countries may be hampered or stopped by protective tariffs; but in these cases Nature usually takes her eventual revenges. They are instances which show, not that man can disregard her, but that when he does so, he does so to his own loss.

Man Cannot Disregard Nature

It would be easy to add further illustrations, but those already given are sufficient to indicate how multiform and pervading is the action upon man of the physical environment, or in other words, how in all countries, and at all times, geography is the necessary foundation of history, so that neither the course of a nation's growth, nor its relations with other nations, can be grasped by one who has not come to understand the climate, surface, and products of the country wherein that nation dwells.

This conception of the relation of geography to history is, as has been said, the leading idea of the present work, and has furnished the main lines which it follows. It deals with history in the light of physical environment. Its ground plan, so to speak, is primarily geographical, and secondarily chronological. But there is one difficulty in the way of such a scheme, and of the use of such a ground plan, which cannot be passed over. That difficulty is suggested by the fact already noted—that hardly any considerable race, and possibly no great nation, now inhabits the particular part of the earth's surface on which it was dwelling when a history begins. Nearly every people has either migrated bodily from one region to another, or has received such large infusions of immigrants from other regions as to have become practically a new people. Hence it is rare to find any nation now living under the physical conditions which originally moulded its character, or the character of some at least of its component elements. And hence it follows that when we study the qualities, aptitudes, and institutions of a nation in connection with the land it inhabits, we must always have regard not merely to the features of that land, but also to those of the land which was its earlier dwelling-place. Obviously, this brings a disturbing element into the study of the relations between land and people, and makes the whole problem a far more complicated one than it appeared at first sight.

There is no Unmixed Race left

Where a people has migrated from a country whose physical conditions were similar to those under which its later life is spent, or where it had reached only a comparatively low stage of economic and political development before the migration, the difficulties arising from this source are not serious. The fact that the English came into Britain from the lands round the mouth of the Elbe is not very material to an inquiry into their relations to their new home, because climate and soil were similar, and the emigrants were a rude, warlike race. But when we come to the second migration of the English, from Britain to North America, the case is altogether different. Groups of men from a people which had already become highly civilised, had formed a well-marked national character, and had created a body of peculiar institutions, planted themselves in a country whose climate and physical features are widely diverse from those of Britain.

Nature's Race Factory

If, for the sake of argument, we assume the Algonquin aborigines of Atlantic North America as they were in A.D. 1600 to have been the legitimate product of their physical environment—I say "for the sake of argument," because it may be alleged that other forces than those of physical environment contributed to form them—what greater contrast can be imagined than the contrast between the inhabitants of New England in this present year and the inhabitants of the same district three centuries earlier, as Nature, and Nature alone, had turned them out of her factory? Plainly, therefore, the history of the United States cannot, so far as Nature and geography are concerned, be written with regard solely, or even chiefly, to the conditions of North American nature. The physical environment in which the English immigrants found themselves on that continent has no doubt affected

their material progress and the course of their politics during the three centuries that have elapsed since settlements were founded in Virginia and on Massachusetts Bay.

But it is not to that environment, but to earlier days, and especially to the twelve centuries during which their ancestors lived in England, that their character and institutions are to be traced. Thus the history of the American people begins in the forests of Germany, where the foundations of their polity were laid, and is continued in England, where they set up kingdoms, embraced Christianity, became one nation, received an influx of Celtic, Danish, and Norman-French blood, formed for themselves that body of customs, laws, and institutions which they transplanted to the new soil of America, and most of which, though changed and always changing, they still retain. The same thing is true of the Spaniards (as also of the Portuguese) in Central and South America. The difference between the development of the Hispano-Americans and that of their English neighbours to the north is not wholly, or even mainly, due to the different physical conditions under which the two sets of colonists have lived.

Beginnings of Race History

It is due to the different antecedent history of the two races. So a history of America must be a history not only of America, but of the Spaniards, Portuguese, French, and English—one ought in strictness to add of the negroes also—before they crossed the Atlantic. The only true Americans, the only Americans for whom American nature can be deemed answerable, are the aboriginal red men whom we, perpetuating the mistake of Columbus, still call Indians.

Geography as a Basis of History

This objection to the geographical scheme of history writing is no doubt serious when a historical treatise is confined to one particular country or continent, as in the instance I have taken of the Continent of North America. It is, however, less formidable in a universal history, such as the present work, because, by referring to another volume of the series, the reader will find what he needs to know regarding the history of the Spaniards, English, and French in those respective European homes where they have grown to be that which they were when, with religion, slaughter, and slavery in their train, they descended upon the shores of America.

Accordingly the difficulty I have pointed out does not disparage the idea and plan of writing universal history on a geographical basis. It merely indicates a caution needed in applying that plan, and a condition indispensable to its utility—viz., the regard that must be had to the stage of progress at which a people has arrived when it is subjected to an environment different from that which had in the first instance helped to form its type.

THE GROWTH OF MODERN KNOWLEDGE

WE have now considered some of the ways in which a universal history, written with special reference to the physical phenomena of the earth as geographical science presents them, may bring into strong relief one large and permanent set of influences which determine the progress or retrogression of each several branch of mankind. Upon the other principles which preside over and direct the composition of such a work, not much need be said. They are, of course, in the main, those which all competent historians will follow in writing the history of any particular people.

But a universal history which endeavours to present in a short compass a record of the course of events in all regions and among all peoples, since none can safely be omitted, is specially exposed to two dangers. One is that of becoming sketchy and viewy. When a large object has to be dealt with on a small scale, it is natural to sum up in a few broad generalisations masses of facts which cannot be described or examined in detail. Broad generalisations are valuable when they proceed from a thoroughly trained mind — valuable, even if not completely verifiable, because they excite reflection. But it is seldom possible to make them exact. They necessarily omit most of the exceptions, and thus suggest a greater uniformity than exists.

The other danger is that of sacrificing brightness and charm of presentation. When an effort is made to avoid generalisations, and to squeeze into the narrative as many facts as the space will admit, the



THE STONE AGE: HUNTERS RETURNING FROM THE CHASE
From the painting by Ferdinand Cormon

Neurdein

narrative is apt to become dry, because compression involves the curtailment of the personal and dramatic element. These are the rocks between which every historian has to steer. If he has ample space, he does well to prefer the course of giving all the salient facts and leaving the reader to generalise for himself. If, however, his space is limited, as must needs be the lot of those who write a universal history, the impossibility of going into minute detail makes generalisations inevitable, for it is through them that the result and significance of a multitude of minor facts must be conveyed in a condensed form.

Need of Care in History

All the greater, therefore, becomes the need for care and sobriety in the forming and setting forth every summarising statement and general conclusion or judgment. Probably the soundest guiding principle and best safeguard against error is to be found in shunning all preconceived hypotheses which seek to explain history by one set of causes, or to read it in the light of one idea. The habit of magnifying a single factor, such as the social factor, or the economic, or the religious, has been a fertile source of weakness in historical writing, because it has made the presentation of events one-sided, destroying that balance and proportion which it is the highest merit of any historian to have attained. Theory and generalisation are the life-blood of history. They make it intelligible. They give it unity. They convey to us the instruction which it always contains, together with so much of practical guidance in the management of communities as history is capable of rendering. But they need to be applied with reserve, and not only with an impartial mind, but after a painstaking examination of all the facts—whether or no they seem to make for the particular theory stated—and of all the theories which any competent predecessor has propounded.

New Minds and New Facts

For the historian, though he must keep himself from falling under the dominion of any one doctrine by which it is sought to connect and explain phenomena, must welcome all the light which any such doctrine can throw upon facts. Even if such a doctrine be imperfect, even if it be tainted by error, it may serve to indicate relations between facts, or to indicate the true importance of facts, which previous writers had failed to observe, or had passed too lightly over. It is thus that history always needs to be re-written. History is a progressive science, not merely because new facts are constantly being discovered, not merely because the changes in the world give to old facts a new significance, but also because every truly penetrating and original mind sees in the old facts something which had not been seen before.

A universal history is fitted to correct such defects as may be incident to that extreme specialism in historical writing which is now in fashion. The broad and concise treatment which a history of all times and peoples must adopt naturally leads to efforts to characterise the dominant features and tendency of an epoch or a movement, whether social, economic, or political.

Yet even here there is a danger to be guarded against. No epoch, no movement, is so simple as it looks at first sight, or as one would gather from even the most honest contemporary writer. There is always an eddy at the side of the stream; and the stream itself is the resultant of a number of rivulets with different sources, whose waters, if the metaphor may be extended, are of different tints. Let any man study minutely a given epoch, such as that of the Reformation in Germany, or that of the Revolutionary War in America, and he will be surprised to find how much more complex were the forces at work than he had at first supposed, and on how much smaller a number of persons than he had fancied the principal forces did in fact directly operate. Or let any one—for this is perhaps the best, if the most difficult, method of getting at the roots of this complexity—study thoroughly and dispassionately the phenomena of his own time. Let him observe how many movements go on simultaneously, sometimes accelerating, sometimes retarding, one another, and mark how, the more fully he understands this complex interlacing, so much the less confident do his predictions of the future become. He will then realise how hard it is to find simple explanations and to deliver exact statements regarding critical epochs in the past.

The Side Streams of History



THE FIRST INDUSTRIES: POTTERY
From the painting by Ferdinand Cormon

Mercier



THE FIRST INDUSTRIES: THE FORGE
From the painting by Ferdinand Cormon

Mercier

Nevertheless, the task of summarising and explaining is one to which the writer of a History of the World must address himself. If he has the disadvantage of limited space, he has the advantage of being able to assume the reader's knowledge of what has gone before, and to invite the reader's attention to what will come after. Thus he stands in a better position than does the writer who deals with one country or one epoch only for making each part of history illustrate other parts, for showing how similar social tendencies, similar proclivities of human nature, work similarly under varying conditions and are followed by similar, though never identical, results. He is able to bring out the essential unity of history, expunging from the reader's mind the conventional and often misleading distinctions that are commonly drawn between the ancient, the mediæval, and the modern time. He can bring the contemporaneous course of events in different countries into a fruitful relation. And in the case of the present work, which dwells more especially on the geographical side of history, he can illustrate from each country in succession the influence of physical environment on the formation of races and the progress of nations, the principles which determine the action of such environment being everywhere similar, though the forms which that action takes are infinitely various.

The Main Stream of History

Is there, it may be asked, any central thread in following which the unity of history most plainly appears? Is there any process in tracing which we can feel that we are floating down the main stream of the world's onward movement? If there be such a process, its study ought to help us to realise the unity of history by connecting the development of the numerous branches of the human family.

One such process has already been adverted to and illustrated. It is the gradual and constant increase in man's power over Nature, whereby he is emancipated more and more from the conditions she imposes on his life, yet is brought into an always closer touch with her by the discovery of new methods of using her gifts. Two other such processes may be briefly examined. One goes on in the sphere of time, and consists in the accumulation from age to age of the strength, the knowledge, and the culture of mankind as a whole. The other goes on in space as well as in time, and may be described as the contraction of the world, relatively to man.

The accumulation of physical strength is most apparent in the increase of the human race. We have no trustworthy data for determining the population, even of any one civilised country, more than a century and a half ago; much less can we conjecture that of any country in primitive or prehistoric times. It is clear, however, that in prehistoric times—say, six or seven thousand years ago, there were very few men on the earth's surface. The scarcity of food alone would be sufficient to prove that; and, indeed, all our data go to show it. Fifty years ago the world's population used to be roughly conjectured at from seven to nine hundred millions, two-thirds of them in China and India. It is now estimated at over fifteen hundred millions. That of Europe alone must have tripled within a century, and can hardly be less than four hundred millions. That of North America may have scarcely exceeded four or five millions in the time of Christopher Columbus, or at the date of the first English settlements, though we have only the scantiest data for a guess. It may now be 130,000,000, for there are over a hundred millions in the United States alone, about fifteen in Mexico, and eight in Canada, besides the inhabitants of Central America.

The Great Increase of Population

The increase has been most swift in the civilised countries, such as Britain, Germany, Russia, and the United States; but it has gone on in India also since India came under British rule (famines notwithstanding), and in the regions recently colonised by Europeans, such as Australia, Siberia, and Argentina, the disappearance of aborigines being far more than compensated for by the prolific power of the white immigrants. Some regions, such as Asia Minor and parts of North Africa, are more thinly peopled now than they were under the Roman Empire, and both China and Peru may have no larger population than they had five, or ten, or fifteen centuries ago. But taking the world at large, the increase is enormous, and will apparently continue. Even after the vacant cultivable spaces which remain in the two Americas,

The Prolific Power of White People

Northern Asia, and Australasia have been filled, the discovery of new modes of enlarging the annually available stock of food may maintain the increase. It is most conspicuous among the European races, and is, of course, due to the greater production in some regions of food, and in others of commodities wherewith food can be purchased. It means an immense addition to the physical force of mankind in the aggregate, and to the possibilities of intellectual force also—a point to be considered later. And, of course, it also means an immense and growing preponderance of the civilised white nations, which are now probably one half of mankind, and may, in another century, when they have risen from about five hundred to, possibly, one thousand or fifteen hundred millions, be nearly two-thirds.

Physical & Intellectual Power

As respects the strength of the average individual man, the inquiry is less simple. Palæolithic man and neolithic man were apparently (though here and there may have been exceptions) comparatively feeble creatures, as are the relics of the most backward tribes known to us, such as the Veddas of Ceylon, the Bushmen, the Fuegians. Some savages, as, for instance, the Patagonians, are men of great stature, and some of the North American Indians possess amazing powers of endurance. The Greeks of the fifth century B.C., and the Teutons of the time of Julius Cæsar, had reached a high physical development. Pheidippides is said to have traversed one hundred and fifty miles on foot in forty-eight hours. But if we think of single feats of strength, feats have been performed in our own day—such as Captain Webb's swimming across the Straits of Dover—equal to anything recorded from ancient or mediæval times. To swim across the much narrower Hellespont was then deemed a surprising exploit. Nor do we know of any race more to be commended for physical power and vigour of constitution than the American backwoodsmen of Kentucky or Oregon to-day. The swords used by the knights of the fifteenth century have usually handles too small for many a modern English or German hand to grasp.

Modern Man Stronger than his Ancestors

Isolated feats do not prove very much, but there is good reason to believe that the average European is as strong as ever he was, and probably more healthy, at least if longevity is a test of health. One may fairly conclude that with better and more abundant food, the average of stature and strength has improved over the world at large, so that in this respect aiso the force of mankind as a whole has advanced. Whether this advance will continue is more doubtful. In modern industrial communities the law of the survival of the fittest may turn out to be reversed, for it is the poorer and lower sections of the population that marry at an early age, and have the largest families, while prudential considerations keep down the birth-rate among the upper middle-class. In Transylvania, for instance, the Saxons are dying out, because very few children are born to each pair, while the less educated and cultured Rumans increase fast. In North America, the Old New England stock of comparatively pure British blood has begun to be swamped by the offspring of the recent immigrants, mostly Irish or French Canadians; and although the sons of New England, who have gone West, continue to be prolific, it is probable that the phenomena of New England will recur in the Mississippi Valley, and that the newcomers from Europe who form the less cultivated strata of the population—Irish, Germans, Italians, Czechs, Poles, Slovaks, Rumans—will contribute an increasing proportion of the inhabitants. Some of these, and especially the Irish and the Germans and the Scandinavians, are among the best elements in the American population, and have produced men of the highest distinction. But the average level among them of versatile aptitude and of intellectual culture is slightly below that of the native Americans.

America's Mingled Races

Now, the poorer sections are in most countries, though of course not always to the same extent, somewhat inferior in physical as well as in mental quality, and more prone to suffer from that greatest hindrance to physical improvement, the abuse of alcoholic drinks.

We come next to another form of the increase of human resources, the accumulation of knowledge, and of what may be called intellectual culture and capacity, for it is convenient to distinguish these two latter from knowledge.

In knowledge there has been an advance, not merely a tolerably steady

and constant advance, but one which has gone on with a sort of geometrical progression, moving the faster the nearer we come to our own time. Whatever may have befallen in the prehistoric darkness, history knows of only one notable arrest or setback in the onward march—that which marks the seventh, eighth, and ninth centuries of the Christian era. Even this set-back was practically confined to Southern and Western Europe, and affected only certain departments of knowledge. It did not, save, perhaps, as regards a few artistic processes, extinguish that extremely important part of the previously accumulated resources of mankind which consisted in the knowledge of inventions. It is in respect of inventions, especially mechanical and physical or chemical inventions, that the accumulation of knowledge has been most noteworthy and most easy to appreciate.

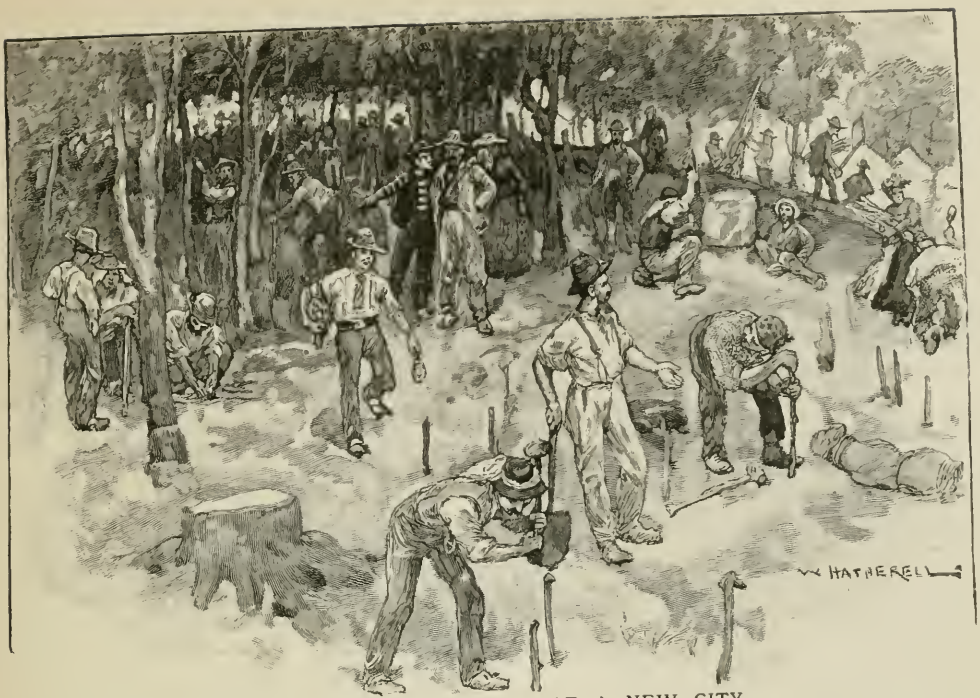
Inventions Mean Progress

A history of inventions is a history of the progress of mankind, of a progress to which every race may have contributed in primitive times, though all the later contributions have come from a few of the most civilised. Every great invention marks one onward step, as one may see by enumerating a few, such as the use of fire, cooking, metal working, the domestication of wild animals, the tillage of the ground, the use of plough and mattock and harrow and fan, the discovery of plants or trees useful for food or for medicine, the cart, the wheel, the water-mill (overshot, undershot, and turbine), the windmill, the distaff (followed long, long after by the spinning-wheel), the loom, dyestuffs, the needle, the potter's wheel, the hydraulic press, the axe-handle, the spear, the bow, the shield, the war-chariot, the sling, the cross-bow, the boat, the paddle, the oar, the helm, the sail, the mariner's compass, the clock, picture-writing, the alphabet, parchment, paper,



PIONEERS OF MODERN CIVILISATION

The discovery of precious metals is a great factor in progress. Seekers after gold are chief among the pioneers who help to carry civilisation into new lands.



THE FIRST SETTLEMENT OF A NEW CITY

Many flourishing cities in South Africa, Australia, and America have grown up around the sites where the first gold-seekers pegged out their claims in unexploited territories and began digging for the precious metal.

printing, photography, the sliding keel, the sounding-lead, the log, the brick, mortar, the column, the arch, the dome, till we come down to explosives, the microscope, the cantilever, and the Röntgen rays.

The history of the successive discovery, commixture, and applications of the metals, from copper and bronze down to manganese, platinum, and aluminium, or of the successive discovery and utilisation of sources of power—the natural sources, such as water and wind, the artificially procured, such as steam, gas, and electricity—or of the production and manufacture of materials available for clothing, wool, hair, linen, silk, cotton, would show how every step becomes the basis for another step, and how inventions in one department suggest or facilitate inventions in another. Recent discoveries in surgery and medicine, such as the use of antiseptics, tend to improve health and to prolong life; and in doing so, they increase the chances of further discoveries being made.

Who can tell what the world may have lost by the early death of many a man of genius? One peculiar line of discovery which at first seemed to have nothing to do with practice has proved to be of signal service; the working out of mathematical methods of calculation by means of which the mechanical and physical sciences have in recent times made a progress in their practical application undreamt of by those who laid the foundations of geometry and algebra many centuries ago. It may, indeed, be said that all the sciences need one another, and that none has been without its utilities for practice, since even that which deals with the heavenly bodies has been used for the computation of time, was used by the agriculturist before he had any calendars to guide him, and has been of supreme value to the navigator. It has also been suggested that an observation of sun spots may enable the advent of specially hot seasons, involving droughts, to be predicted.

The Prolonging of Life

Another kind of knowledge also grows by the joint efforts of many peoples, that which records the condition of men in the past and the present, including history, economics, statistics, and the other so-called social sciences. This kind also is useful for practice, and has led to

improvements by which nearly all nations have profited, such as an undebased currency, banking and insurance, better systems of taxation, corporations, and joint stock companies. With this we may couple the invention of improved political institutions.

The accumulation of knowledge, especially of scientific knowledge applied to the exploitation of the resources of Nature, means the accumulation of wealth —that is to say, of all the things which men need or use. The total wealth of the world must have at least quadrupled or quintupled within the last hundred years. Nearly all of it is in the hands or under the control of the civilised nations of European stock, among whom the United States stands foremost, both in rate of economic growth and in the absolute quantity of values possessed.

Two further observations belong to this part of the subject. One is that this stock of useful knowledge, the accumulation of which is the central fact of the material progress as well as of the intellectual history of mankind, now belongs to (practically) all races and states alike. Some, as we shall note presently, are more able to use it than others, but all have access to it. This is a new fact. It is true that most races have contributed something to the common stock; and that even among the civilised peoples, no one or two or three (except possibly the Greeks as respects ancient times) can claim to have contributed much more than the others. But in earlier ages there were peoples or groups of peoples who were for a time the sole possessors of inventions which gave them great advantages, especially for war. Superior weapons as well as superior drill enabled Alexander the Great, and afterward the Romans, to conquer most of the civilised world. Horses and firearms, with courage and discipline, enabled two Spanish adventurers to seize two ancient American empires with very scanty forces, as they enabled a handful of Dutch Boers to overcome the hosts of Mosilikatze and Dingaan. So there were formerly industrial arts known to or practised by a few peoples only. But now all inventions, even those relating to war, are available even to the more backward races, if they can learn how to use them or can hire white men to do so for them. The facilities of communication are so great, the means of publicity so abundant, that everything becomes speedily known everywhere.

Knowledge Means Wealth

The other observation is that there is now no risk that any valuable piece of knowledge will be lost. Every public event that happens, as well as every fact of scientific consequence, is put on record, and that not on a single stone or in a few manuscripts, but in books, of which so many copies exist that even the perishable nature of the material will not involve the loss of the contents, since, if these contents are valuable, they will be transferred to and issued in other books, and so *ad infinitum*. Thus every process of manufacture is known to so many persons that while it continues to be serviceable it is sure to be familiar and transmitted from generation to generation by practice as well as by description. We must imagine a world totally different from the world we know in order to imagine the possibility of any diminution, indeed of any discontinuance of the increase, of this stock of knowledge which the world has been acquiring, and which is not only knowledge but potential wealth.

Inventions are now Universal

When one passes from knowledge considered as a body of facts ascertained and available for use to the thing we call intellectual aptitude or culture—namely, the power of turning knowledge to account and of producing results in spheres other than material—and when we inquire whether mankind has made a parallel advance in this direction, it becomes necessary to distinguish three different kinds of intellectual capacity.

The first may be called the power of using scientific methods for investigating phenomena, whether physical or social.

The second is the power of speculation, applied to matters which have not hitherto been found capable of examination by the methods of science, whether observational, experimental, or mathematical. The third is the power of intellectual creation, whether literary or artistic.

No Decrease of Knowledge is now Likely

The methods of scientific inquiry may almost be classed with the ascertained facts of science or with inventions, as being parts of the stock of accumulated knowledge built up by the labour of

many generations. They are known to everybody who cares to study them, and can be learnt and applied by everybody who will give due diligence. Just as every man can be taught to fire a gun, or steer a ship, or write a letter, though guns, helms, and letters are the result of discoveries made by exceptionally gifted men, so every graduate in science of a university can use the methods of induction, can observe and experiment with a correctness which a few centuries ago even the most vigorous minds could scarcely have reached.

Because the methods have been so fully explained and illustrated as to have grown familiar, a vast host of investigators, very few of whom possess scientific genius, are at work to-day extending our scientific knowledge. So the methods of historical criticism—so the methods of using statistics—are to-day profitably applied by many men with no such original gift as would have made them competent critics or statisticians had not the paths been cut by a few great men and trodden since by hundreds of feet.

Original Thinkers are still Rare

All that is needed is imitation—intelligent and careful imitation. Nevertheless, there remains this sharp contrast between knowledge of the facts of applied science and knowledge of the methods, that whereas there is no radical difference between the ability of one man and that of another to use a mechanical invention, such as a steam plough or an electric motor-car, there is all the difference in the world between the power of one intellect and another to use a method for the purposes of fresh discovery. Knowledge fossilised in a concrete invention or even in a mathematical formula is a sort of tool ready to every hand. But a method, though serviceable to everybody, becomes eminently fruitful only when wielded by the same kind of original genius as that which made discoveries by the less perfect methods of older days. This is apparent even in inquiries which seem to reside chiefly in collection and computation. Everybody tries nowadays to use statistics. Many people do use them profitably. But the people who by means of statistics can throw really fresh and brilliant light on a problem are as few as ever they were.

When we turn to the exercise of speculative thought on subjects not amenable to strictly scientific—that is to say, to exact—methods, the gain which has come to mankind by the labour of past ages is of a different order. Metaphysics, ethics, and theology, to take the most obvious examples, are all of them the richer for the thoughts of philosophers in the past. A number of distinctions have been drawn, and a number of classifications made, a number of confusions, often verbal, have been cleared up, a number of fallacies detected, a number of technical terms invented, whereby the modern speculator enjoys a great advantage over his predecessor. His mind has been clarified, and many new aspects of the old problems have been presented, so that he is better able to see all round the old problems.

Advantage of Modern over Old Thinkers

None of the great thinkers, from Pythagoras down to Hegel, has left metaphysics where he found it. Yet none can be said to have built on the foundations of his predecessors in the same way as the mathematicians and physicists and chemists have added to the edifice they found. What the philosophers have done is to accumulate materials for the study of man's faculties and modes of thinking, and of his ideas regarding his relations to the universe, while also indicating various methods by which the study may be pursued. Each great product of speculative thought is itself a part of these materials, and for that reason never becomes obsolete, as the treatises of the old physicists and chemists have mostly become. Aristotle, for instance, has left us books on natural history, on metaphysics and ethics, and on politics. Those on natural history are mere curiosities, and no modern biologist or zoologist needs them. Those on metaphysics and ethics still deserve the attention of the student of philosophy, though he may in a certain sense be said to have got beyond them. The treatise on politics still keeps its place beside Montesquieu, Burke, and Tocqueville. Or, to take a thinker who seems further removed from us even than Aristotle, though fifteen hundred years later in date, St. Thomas of Aquinum discusses questions from most of which the modern world has moved away, and discusses them by methods which few would now use, starting from premises which few would now accept. But he marks a remarkable stage in the history of human

The Living Thought of a Dead Age

thought, and as a part of that history, and as an example of extraordinary dialectical ingenuity and subtlety, he remains an object of interest to those least in agreement with his conclusions.

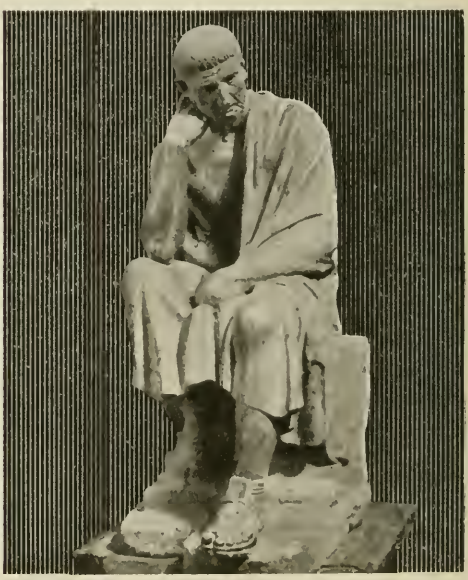
Every Great Thinker Affects Others

Every great thinker affects other thinkers, and propagates the impulse he has received, though perhaps in a quite different direction. The teaching of Socrates was the starting point for nearly all the subsequent schools of Greek philosophy. Hume became the point of departure for Kant, who desired to lay a deeper foundation for philosophy than that which Hume seemed to have overturned. All these great ones have not only enriched us, but are still capable of stimulating us. But they have not improved our capacity for original thinking. The accumulation of scientific knowledge has, as already observed, put all mankind in a better position for solving further physical problems and establishing a more complete dominion over Nature. The accumulation of philosophic thought has had no similar effect. In the former case each man stands, so to speak, on the shoulders of his predecessors. In the latter he stands on his own feet. The value of future contributions to philosophy will depend on the original power of the minds that make them, and only to a small extent (except by way of stimulus) on what such minds may have drawn from those into whose labours they have entered.

When we come to the products of literary and artistic capacity, we find an even vaster accumulation of intellectual treasure available for enjoyment, but a still more marked absence of connection between the amount of treasures possessed and the power of adding fresh treasures to them. Since writing came into use, and, indeed, even in the days when memory alone preserved lays and tales, every age and many races have contributed to the stock. There have been ebbs and flows both in quantity and quality. The centuries between A.D. 600 and A.D. 1100 have left us very little of high merit in literature, though something in architecture; and the best of that little in literature did not come from the seats of Roman civilisation in Italy, France, Spain, and the East Roman Empire.

Ebb-Tides of Intellectual Culture

Some periods have seen an eclipse of poetry, others an eclipse of art or a sterility in music. Literature and the arts have not always flourished together, and musical genius in particular seems to have little to do with the contemporaneous development of other forms of intellectual power. The quantity of production bears no relation to the quality, not even an inverse relation; for the pessimistic notion that the larger the output the smaller is the part which possesses brilliant excellence, has not been proved. Still less does the amount of good work produced in any given area depend upon the number of persons living in that area. Florence, between A.D. 1250 and A.D. 1500 gave birth to more men of first-rate poetical and artistic genius than London has produced since 1250; yet Florence had in those two and a half centuries a population of probably only from forty to sixty thousand. And Florence herself has since A.D. 1500 given birth to scarcely any distinguished poets or artists, though her population has been larger than it was in the fifteenth century.



Mansell

THE MIND OF THE ANCIENT WORLD
Aristotle (B.C. 384–322) whose influence is greater in modern thought than that of St. Thomas of Aquinum, who represents mediæval thought, 1500 years later.

The increase in the world's stock of intellectual wealth is one of the most remarkable facts in history, for it represents a constant increase in the means of enjoyment. Such losses as there have been nearly all occurred during the Dark Ages; but there is now little risk

that anything of high literary or musical value will perish, though, of course, works of art, and especially buildings and carvings, suffer or vanish.

The increase does not, however, tend to any strengthening of the creative faculty. There is a greater abundance of models of excellence, models of which form the taste, afford a stimulus to sensitive minds, and establish a sort of technique with well-known rules. The principles of criticism are more fully investigated. The power of analysis grows, and the appreciation both of literature and of art is more widely diffused. Their influence on the whole community becomes greater, but the creative imagination which is needed for the production of original work



Mansell

THE MIND OF THE MEDIÆVAL WORLD

St. Thomas of Aquinum, 1500 years later than Aristotle, represents mediæval thought. But the Mediæval World is more remote than the Classical in thought and science.

becomes no more abundant and no more powerful. It may, indeed, be urged, though our data are probably insufficient for a final judgment, that the finer qualities of poetry and of pictorial and plastic art tend rather to decline under the more analytic habit of mind which belongs to the modern world. Simplicity, freshness, spontaneity come less naturally to those who have fallen under the pervasive influence of this habit.

There remains one other way in which the incessant play of thought may be said to have increased or improved the resources of mankind. Certain principles or ideas belonging to the moral and social sphere—to the moral sphere by their origin, to the social sphere by their results—make their way to a more or less general acceptance, and exert a potent influence upon human life and action. They are absent in the earliest communities of which we know, or are present only in germ. They emerge, sometimes in the form of customs gradually built up in one or more peoples, sometimes in the utterances of one gifted mind. Sometimes they spread impalpably; sometimes they become matter for controversy, and are made the battle-cries of parties. Sometimes they end by being universally received, though not necessarily put into practice. Sometimes, on the other hand, they continue to be rejected in one country, or by one set of persons in a country, as vehemently as they are asserted by another. As instances of these principles or ideas or doctrines, whatever one is to call them, the following may be taken: The condemnation of piracy, of slavery, and of treaty-breaking, of outrages on the bodies of dead enemies, of cruelty to the lower animals, of the slaughter of prisoners in cold blood, of polygamy, of torture to witnesses or criminals; the recognition of the duty of citizens to obey the laws, and of the moral responsibility of rulers for the exercise of their power, of the right of each man to hold his own religious opinion and to worship accordingly, of the civil (though not necessarily of the political) equality of all citizens; the disapproval of intoxication, the value set upon female chastity, the acceptance of the social and civil (to which some would add the political) equality of women.

Effect of Thought on Mankind

All these dogmas or ideas or opinions—some have become dogmas in all civilised peoples, others are rather to be described as opinions whose truth or worth is denied or only partially admitted—are the slow product of many generations. Most of them are due to what we may call the intelligence and sentiment of mankind at large, rather than to their advocacy by any prominent individual thinkers. The teachings of such thinkers have, of course, done much to advance them. Everybody would name Socrates and Confucius as among the men who have contributed to their progress; some would add such names as those of Mohammed and

Men who Contributed to Progress

St. Francis of Assisi. Christianity has, of course, made the largest contributions. How much is due to moral feeling, how much to a sense of common utility, cannot be exactly estimated. Economic reasonings and practical experience would have probably in the long run destroyed slavery, but it was sentiment that did in fact destroy it in the civilised States where it had longest survived.

Slavery was Destroyed by Sentiment

How much these doctrines, even in the partial and imperfect application which most of them have secured, have done for humanity may be perceived by anyone who will imagine what the world would be if they were unknown. They form one of the most substantial additions made to what may be called the intellectual and moral capital with which man has to work this planet and improve his own life upon it. And the most interesting and significant crises in history are those which have turned upon the recognition or application of principles of this kind. The Reformation of the sixteenth century, the French Revolution, the War of Secession in the United States, are familiar modern examples.

Putting all these forms of human achievement together—the extension of the scientific knowledge of Nature with consequent mastery over her, the scientific knowledge of social phenomena in the past and the present, the records of philosophic speculation, the mass of literary and artistic products, the establishment, however partial and imperfect, of regulative moral and political principles—it will be seen that the accumulation of this vast stock of intellectual wealth has been an even more important factor than the increase of population in giving man strength and dignity over against Nature, and in opening up to him an endless variety of modes of enjoying life—that is to say, of making it yield to him the most which its shortness and his own physical infirmities permit. The process by which this accumulation has been carried along is the central thread of history. The main aim of a history of the world must be to show what and how each race or people has contributed to the general stock. To this aim political history, ecclesiastical history, economic history, the history of philosophy, and the history of science, are each of them subordinate, though it is only through them that the process can be explained.

Intellect Mightier than Population

In these last few pages intellectual progress has been considered apart from the area in which it has gone on, and apart from the conditions imposed on it by the natural features of that area. A few words are, however, needed regarding its relation to the surface of the earth. The movement of civilisation must be considered from the side of space as well as from that of time.

Space is a material element in the inquiry because it has divided the families of mankind from one another. Some families, such as the Chinese and the Peruvians, have developed independently, some, such as the South and West European peoples, in connection with, or perhaps in dependence on, the development of other races or peoples. Hence that which each achieved was in some cases achieved for itself only, in other cases for its neighbours as well. The contributions made by different races have—at any rate during the last four thousand years, and probably in earlier days also—been very unequal; yet none can have failed to contribute something if only by way of influencing the others. Inequality in progress would seem to have become more marked in the later than in the earlier periods. Indeed, some races, such as those of Australia, appear during many centuries, possibly owing to their isolation, to have made no progress at all. They may even have receded.

Contraction of the World

When we regard the evolution and development of man from the side of his relations to space, three facts stand out—the contraction of the world, the overflow of the more advanced races, and the consequent diffusion all over the world of what is called civilisation.

By the contraction of the world, I mean the greater swiftness, ease, and safety with which men can pass from one part of it to another, or communicate with one another across great intervening spaces. This has the effect of making the world smaller for most practical purposes, while the absolute distance in latitude and longitude remains the same. The progress of discovery is worth tracing, for it shows how much larger the small earth, which was known to the early nations, must have seemed to them than the whole earth, which we know, seems to us.



THE ARTISTIC GENIUS OF TWO CITIES

A COMPARISON OF THE NATIVE POETS & ARTISTS OF FLORENCE & LONDON

"The quantity of production," says Mr. Bryce, "bears no relation to the quality. Still less does the amount of good work produced in any given area depend upon the number of persons living in that area. Florence between A.D. 1250 and A.D. 1500 gave birth to more men of first-rate poetical and artistic genius than London has produced since 1250; yet Florence had in those two and a half centuries a population of probably only from forty to sixty thousand. And Florence herself has since A.D. 1500 given birth to scarcely any distinguished poets or artists, though her population has been larger than it was in the fifteenth century."

THE GENIUS OF THE GOLDEN AGE OF FLORENCE, 1250 TO 1500, FAR EXCEEDED THAT OF LONDON FROM 1250 TO THE PRESENT DAY

Poets and Artists Born in Florence from 1250–1500

Alberti, Leon Battista, 1404-1472, architect, painter
Albertinelli, Mariotto, 1474-1515, painter
Andrea del Sarto, 1487-1531, painter
Angelico da Fiesole, Fra Giovanni, 1387-1455, painter
Botticelli, Alessandro, 1447-1510, painter
Cavalcanti, Guido, 1255-1300, poet, philosopher
Cimabue, Giovanni, 1240-1302, painter
Credi, Lorenzo di, 1459-1537, painter
Dante, Alighieri, 1265 1321, poet
Donatello, 1386-1466, sculptor and painter
Ghiberti, Lorenzo, 1378-1455, sculptor
Ghirlandajo, Domenico, 1449-1494, painter
Gozzoli, Benozzo, 1420-1498, painter
Leonardo da Vinci, 1452-1519, painter, sculptor
Lippi, Fra Filippo, 1412-1469, painter
Lippi, Filippino, 1459-1504, painter
Lorenzo, Don, 1370-1425, painter
Medici, Lorenzo de, 1448-1492, poet
Orcagnia, Andrea di Cione, 1329-1368? sculptor, painter
Perugino, Vannucci Pietro, 1446-1524, painter
Pesellino, Francesco di, 1422-1457, painter
Pesello, Giuliano, 1367-1446, painter, sculptor
Pollajuolo, Antonio, 1429-1498, sculptor, painter
Pollajuolo, Piero, 1443-1496, sculptor, painter
Robbia, Andrea della, 1437-1528, sculptor
Robbia, Luca della, 1399-1482, sculptor
Rossi, Giovanni Battista de, 1494-1541, sculptor, painter
Ruccellai, Giovanni, 1475-1525, poet
Spinello, Aretino, 1334-1410, painter
Ucello, Paolo, 1397-1475, painter
Verocchio, Andrea, 1435-1488, sculptor, painter

THE LAST FOUR HUNDRED YEARS OF FLORENTINE CULTURE HAVE BEEN LESS PRODUCTIVE THAN THE PRECEDING TWO AND A HALF CENTURIES

Poets and Artists Born in Florence since 1500

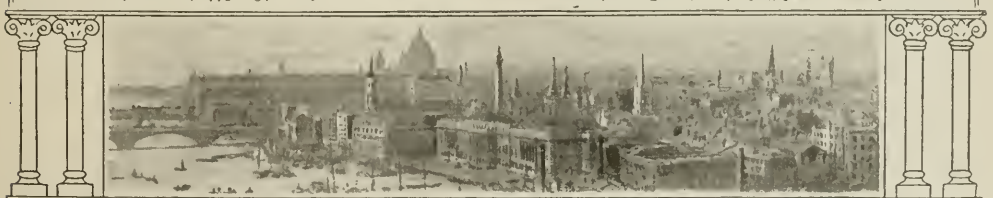
Allori, Christofano, 1577-1621, painter
Bronzino, Angelo, 1502-1572, painter
Cellini, Benvenuto, 1500-1571, sculptor
Cigoli, Luigi Cardi da, 1559-1613, painter
Cortona, Pietro da, 1596-1669, architect, painter
Dolci, Carlo, 1616-1686, painter
Doni, Antonio Francesco, 1513-1574, author
Furini, Francesco, 1604-1646, painter
Ligozzi, Jacobino, 1543-1627, painter
Poccetti, Bernardino, 1542-1612, painter
Salviati, Francesco, 1510-1563, painter
San Giovanni, Giovanni da, 1599-1636, painter
Santi di Tito, 1538-1603, painter
Tacco, Pietro, 1580-1640, sculptor
Venusti, Marcello, 1515-1579, painter

The Only Great Poet Born in London from 1250–1500

Chaucer, Geoffrey, 1328-1400

Poets and Artists Born in London since 1500

Blake, William, 1757-1827, poet and painter
Browning, Robert, 1812-1889, poet
Byron, Geo. Gordon Noel, Lord, 1788-1824, poet
Defoe, Daniel, 1659-1731, author
Ford, Edward Onslow, 1852-1901, sculptor
Gilbert, Alfred, R.A., 1854- —, sculptor
Gray, Thomas, 1716-1771, poet
Hogarth, William, 1697-1764, painter
Hood, Thomas, 1799-1845, poet
Hunt, William Holman, 1827-1910, painter
Jonson, Ben, 1573-1637, poet and dramatist
Keats, John, 1795-1821, poet
Lamb, Charles, 1775-1834, essayist
Linnell, John, 1792-1882, painter
Lucas, John Seymour, 1849- —, painter
Milton, John, 1608-1674, poet
Morland, George, 1763-1804, painter
Pope, Alexander, 1688-1744, poet
Richmond, Sir William Blake, 1843- —, painter
Rossetti, Dante Gabriel, 1828-1882, poet, painter
Ruskin, John, 1819-1900, author and art critic
Spenser, Edmund, 1552-1599, poet
Stothard, Thomas, 1755-1834, painter, illustrator
Swinburne, Algernon, 1837-1909, poet
Walker, Frederick, 1840-1875, painter
Watts, George F., 1817-1904, painter, sculptor



The most ancient records we possess from Assyria, Egypt, Palestine and from the Homeric poems, show how very limited was the range of geographical knowledge possessed by that small civilised world from which our own civilisation has descended. Speaking roughly, that knowledge seems in the tenth century B.C. to have extended about one thousand miles in each direction from the Isthmus of Suez. However, the best point of departure for the peoples of antiquity is the era of Herodotus, who travelled and wrote B.C. 460–440. The limits of the world as he knew it were Cadiz and the Straits of Gibraltar on the west, the Danube and the Caspian on the north, the deserts of Eastern Persia on the east, and the Sahara on the south, with vague tales regarding peoples who lived beyond, such as Indians far beyond Persia, and pygmies beyond the Sahara. He reports, however, not without hesitation, a circumnavigation of Africa by Phœnicians in the service of Pharaoh Necho.

The Small World of the Ancients

Discovery advanced very slowly for many centuries, though the march of Alexander opened up part of the East, while the Roman conquests brought the Far North-West, including Britain, within the range of civilisation; and occasional voyages, such as that of Hanno along the coast of West Africa, that of Nearchus through the Arabian Sea, and that of Pythias to the Baltic, added something to knowledge. Procopius in A.D. 540 can tell us little more regarding the regions beyond Roman influence than Strabo does five and a half centuries earlier. The journeys of Marco Polo and Rubruquis throw only a passing light on the Far East. It is with the Spanish occupation of the Canary Isles, beginning in 1602, and with the Portuguese voyages of the fifteenth century, that the era of modern discovery opens. The re-discovery of America in 1492, for it had been already visited by the Northmen of Greenland and Iceland in the eleventh century, and the opening of the Cape route to India in 1497–1498, were hardly equal to the exploit of Magellan, whose circumnavigation of the globe in 1519–1520 marks the close of this striking period. Thereafter discovery proceeds more slowly. Some of the isles of the central and southern Pacific were not visited till the middle of the eighteenth century, and the north-west coast of America as well as the north-east Coast of Asia, remained little known till an even later date. Those explorations of the interior of North America, of the interior of Africa, of the interior of Australia, and of East Central Asia, which have completed our knowledge of the earth, belong to the nineteenth century. The first crossing of the North American Continent north of latitude 40° was not effected till A.D. 1806.



THE FIRST KNOWN MAP OF THE WORLD
This Babylonian map is probably of the eighth century B.C. The two circles are supposed to represent the ocean, while the River Euphrates and Babylon are shown inside them. The upper part of the tablet is a cuneiform inscription.

The desire for new territory, for the propagation of religion, and, above all, for the precious metals, were the chief motives which prompted the voyages of the fifteenth and sixteenth centuries. These motives have remained operative; and to them has been added in more recent times the spirit of pure adventure and the interest in science, together with, in increasing measure, the effort to secure trade. But the extension of trade followed slowly in the wake of discovery. China and Japan remained almost closed. The policy of Spain sought to restrict her American waters to her own ships, and the commerce

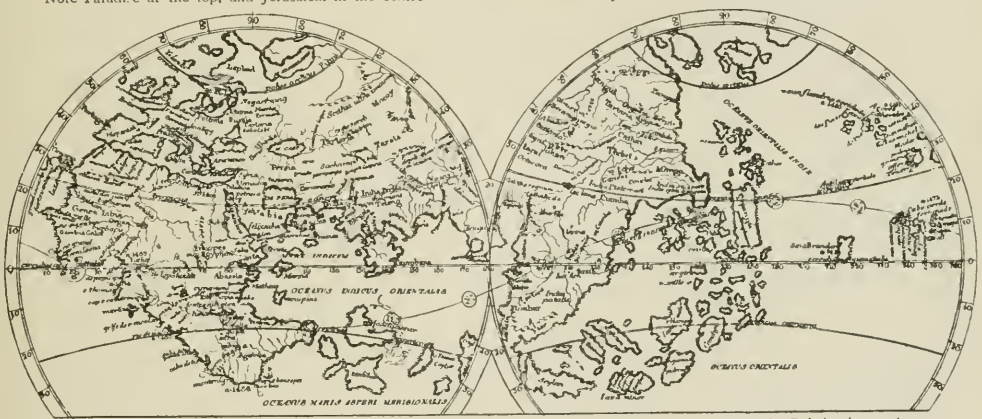
The Thirst for New Territories



The Hereford Map : about 1307
Note Paradise at the top, and Jerusalem in the centre



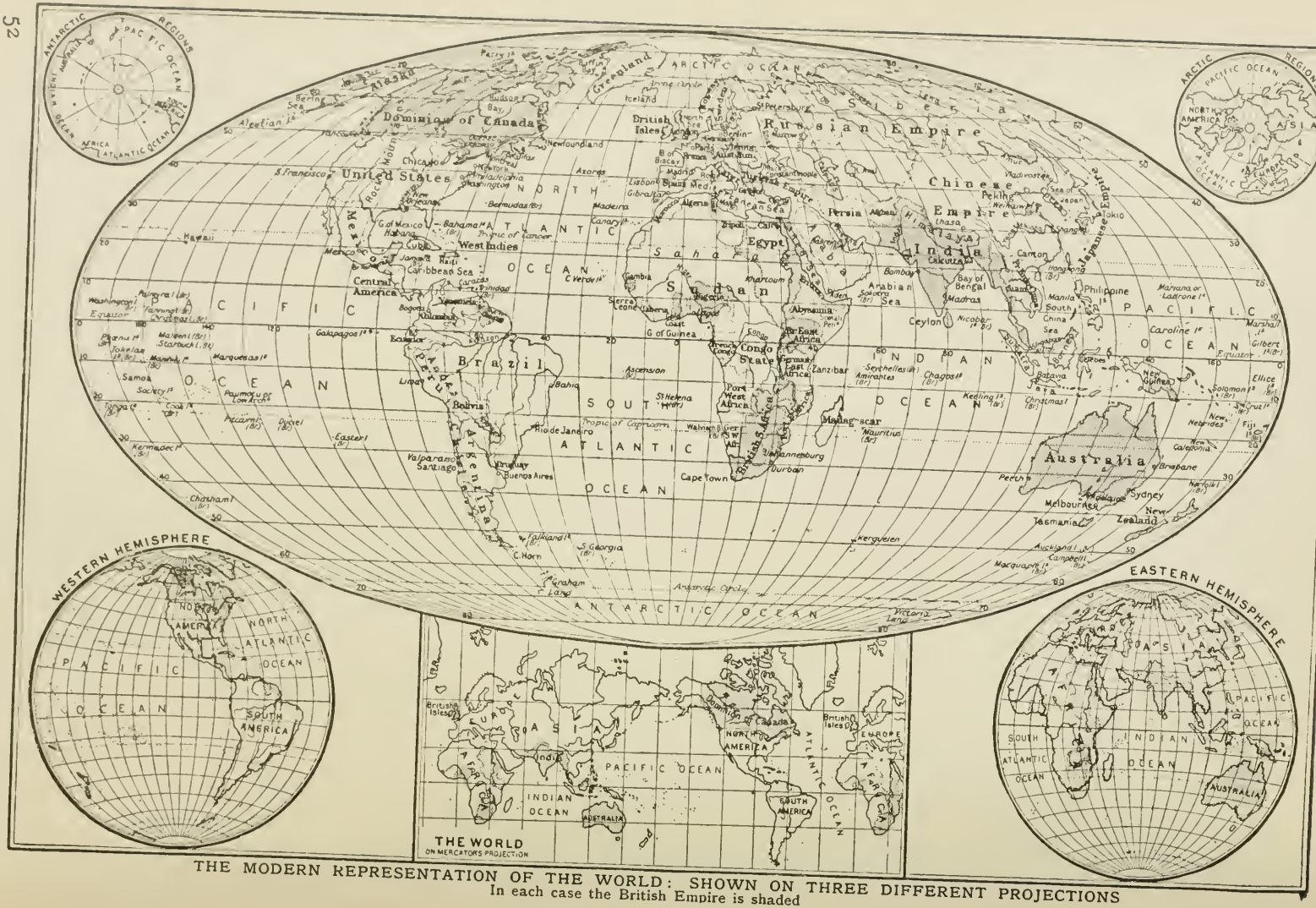
The Fra Mauro Map : about 1457
Babylon is shown in the centre of the map



The World as Known on the Eve of the Discovery of America (Drawn by Martin Behaim in 1492)



The World as known in 150 A.D. From a map by Ptolemy, who appears to have had knowledge o. the sources of the Nile


ANTARCTIC REGIONS
PACIFIC OCEAN
INDIAN OCEAN
AUSTRALIA
AFRICA
ATLANTIC OCEAN
ARCTIC REGIONS
PACIFIC OCEAN
NORTH AMERICA
ASIA
EUROPE
ATLANTIC OCEAN
ARCTIC OCEAN
Greenland
Alaska
Dominion of Canada
United States
NORTH ATLANTIC OCEAN
Russian Empire
Siberia
Chinese Empire
India
Persia
Egypt
Sahara
Sudan
Arabian Sea
Bay of Bengal
Ceylon
Japanese Empire
Tokio
Philippine Is.
Mariana or Ladrone Is.
Caroline Is.
Marshall Is.
Gilbert Is.
PACIFIC OCEAN
Mexico
West Indies
Central America
Brazil
Peru
Bolivia
Chile
Argentina
SOUTH ATLANTIC OCEAN
INDIAN OCEAN
Madagascar
Australia
New Zealand
Tasmania
Sydney
Melbourne
Cape Town
Johannesburg
Durban
Port Said
Suez Canal
Panama Canal
Hawaii
Samoa
Society Is.
Marquesas Is.
Galapagos Is.
Easter I.
Ascension
St Helena
Falkland Is.
S. Georgia
C. Horn
Graham Land
Antarctic Circle
ANTARCTIC OCEAN
Victoria Land
Kerguelen
Auckland Is.
Campbell I.
Macquarie I.
Chatham I.
Kermadec Is.
Fiji Is.
New Caledonia
New Hebrides
Solomon Is.
New Guinea
Java
Batavia
Borneo
Sumatra
Ceylon
Nicobar Is.
Andaman Is.
Hong Kong
Canton
Manila
Formosa
China Sea
Sea of Japan
Vladivostok
Pekin
Yokohama
Nagasaki
Shanghai
Hakodate
Aleutian Is.
Behring Sea
Behring Strait
Hudson Bay
Iceland
Azores
Madeira
Canary Is.
Cape Verde Is.
Bermudas (Br.)
Bahama Is. (Br.)
Jamaica
Haiti
Cuba
Caribbean Sea
Trinidad (Br.)
Gulf of Mexico
Panama
Bogota
Quito
Lima
Valparaiso
Santiago
Buenos Aires
Uruguay
Rio de Janeiro
Bahia
Pernambuco
Gambia
Sierra Leone
Liberia
Gold Coast
Gulf of Guinea
French Congo
Congo State
German East Africa
Zanzibar
Abyssinia
Khartoum
Aden
Red Sea
Mediterranean Sea
Gibraltar
Lisbon
Madrid
Paris
London
Berlin
St Petersburg
Moscow
Constantinople
Black Sea
Caspian Sea
Aral Sea
Afghan
Bombay
Calcutta
Madras
Amirantes (Br.)
Seychelles (Br.)
Chagos Is.
Mauritius (Br.)
Keeling Is. (Br.)
Christmas I. (Br.)
Perth
Adelaide
Hartford
Tasmania
Auckland
Campbell I.
Macquarie I.
Kerguelen
Victoria Land
Graham Land
Antarctic Circle
Antarctic Only
Tropic of Cancer
Tropic of Capricorn
Equator
Greenwich
Washington
Behring Strait
Aleutian Is.
Hawaii
Mexico
Cuba
Jamaica
Haiti
Trinidad
Bermudas
Azores
Madeira
Canary Is.
Cape Verde Is.
Gambia
Sierra Leone
Liberia
Gold Coast
Gulf of Guinea
Congo State
Zanzibar
Abyssinia
Khartoum
Aden
Red Sea
Mediterranean Sea
Gibraltar
Lisbon
Madrid
Paris
London
Berlin
St Petersburg
Moscow
Constantinople
Black Sea
Caspian Sea
Aral Sea
Afghan
Bombay
Calcutta
Madras
Ceylon
Nicobar Is.
Andaman Is.
Hong Kong
Canton
Manila
Formosa
China Sea
Sea of Japan
Vladivostok
Pekin
Yokohama
Nagasaki
Shanghai
Hakodate
Java
Batavia
Borneo
Sumatra
New Guinea
Solomon Is.
New Hebrides
New Caledonia
Fiji Is.
Ellice Is.
Gilbert Is.
Marshall Is.
Caroline Is.
Philippine Is.
Mariana or Ladrone Is.
Japanese Empire
Tokio
Yokohama
Nagasaki
Shanghai
Hakodate
Vladivostok
Pekin
Sea of Japan
Hong Kong
Canton
Manila
Formosa
China Sea

they carried was scanty. Communication remained slow and dangerous across the oceans till the introduction of steam vessels (1825–1830).

Land transport, though it had steadily increased in Europe, remained costly as well as slow till the era of railway construction began in 1829. The application of steam as a motive power and of electricity as a means of communicating thought has been by far the greatest factor in this long process of reducing the dimensions of the world, which dates back as far as the domestication of beasts of burden, and the invention, first of paddles and oars, and then of sails. The North American Continent can now be crossed in five days, the South American (from Valparaiso to Buenos Ayres) in under two, the Transandine tunnel having now been pierced. The Continent which stretches from the Baltic to the North Pacific can now be traversed in twelve days. By means of the Trans-Siberian line and its steamship connection with the ports of Japan, it is now possible to go round the globe in less than fifty days. Indeed, the journey has recently been done in forty days. Nor is this acceleration of transit more remarkable than its practical immunity, as compared with earlier times, not only from the dangers for which Nature is answerable, but from those also which man formerly interposed.

Round the World in 40 Days!

The increase of trade which has followed in the track first of discovery and latterly (with immensely larger volume) of the improvement of means of transport, has been accompanied not only by the seizure of transoceanic territories by the greater civilised States, but also by an outflow of population from those States into the more backward or more thinly-peopled parts of the earth. Sometimes, as in the case of North America, Siberia, and Australia, the emigrants extinguish or absorb the aboriginal population.

Sometimes, as in the case of India, Africa, and some parts of South America, they neither extinguish nor blend with the previous inhabitants, but rule them and spread what is called civilisation among them—this civilisation consisting chiefly in a knowledge of the mechanical arts and of deathful weapons accompanied by the destruction, more or less gradual, of their pre-existing beliefs and usages. Sometimes, again, as in the case of China, and to some extent also of the Mussulman East, though political dominion is not established, the process of substituting a new civilisation for the old one goes on despite the occasional efforts of the backward people to resist the process. The broad result is everywhere similar. The modern European type of civilisation is being diffused over the whole earth, superseding, or essentially modifying, the older local types. Thus, in a still more important sense than even that of communications, the world is contracted and becomes far more one than it has ever been before. The European who speaks three or four languages can travel over nearly all of it, and he can find on most of its habitable coasts, and in many parts of the lately-discovered interior, the appliances which are to him necessaries of life. The world is, in fact, becoming an enlarged Europe, so far as the externals of life and the material side of civilisation are concerned. The dissociative forces of Nature have been overcome.

Europeanisation of the World

Putting together the two processes, the process in time and the process in space, which we have been reviewing, it will be seen that the main line of the development of mankind may be described as the transmission and the expansion of culture—that is to say, of knowledge and intellectual capacity. The stock of knowledge available for use and enjoyment has been steadily increased, and what each people accumulated has been made available for all. With this there has come assimilation, the destruction of weaker types of civilisation, the modification by constant interaction of the stronger types, the creation of a common type tending to absorb all the rest. Assimilation has been most complete in the sphere ruled by natural science—that is to say, in the material sphere, less complete in that ruled by the human sciences (including the sphere of political and social institutions), still less complete in the sphere of religious, moral, and social ideas, and as respects the products of literature and art. Or, in other words, where certainty of knowledge is attainable and utility in practice is incontestable, the process of assimilation has moved fastest and furthest.

Triumph of Natural Science

The process has been a long one, for its beginnings reach back beyond our historical knowledge. So far as it lies within

the range of history, it falls into two periods, the earlier of which supplies an instructive illustration of the later one which we know better. The effort which Nature—that is to say, the natural tendencies of man as a social be... has been making towards the unification of mankind during the last few centuries, is her second great effort. The first was in progress from the time w... n the most ancient records begin d... to the sixth and seventh centuries of th... istian era.

Nature & the Unity of Mankind

Greek civilisation, ...ch itself had drawn much from Eg... well as from Assyria, Phœnicia, an... he peoples of Asia Minor, permeated the minds and institutions (except the legal institutions), of the Mediterranean and West European countries, and was propagated by the governing energy of the Romans. In its Romanised form it transformed or absorbed and superseded the less advanced civilisations of all those countries, creating one new type for the whole Roman world. With some local diversities, that type prevailed from the Northumbrian Wall of Hadrian to the Caucasus and the deserts of Arabia. The still independent races on the northern frontier of the Empire received a tincture of it, and would doubtless have been more deeply imbued had the Roman Empire stood longer.



THE FIRST TRAVELLER ROUND THE GLOBE
The great exploit of Ferdinand Magellan, who circumnavigated the globe in 1519-1520, ranks among the events of world importance, and was the culminating achievement of the greatest period of discovery in the world's history.

Christianity, becoming dominant at a time when the Empire was already tottering, gave a new sense of unity to all whom the Greco-Roman type had formed, extended the influence of that type still further, and enabled much that belonged to it (especially its religious, its legal, and its literary elements) to survive the political dominion of the Emperors and to perpetuate itself among practically independent States which were springing up. The authority of Papal Rome helped to carry this sense of unity among civilised men through a period of ignorance, confusion, and semi-barbarism which might otherwise have extinguished it. Nevertheless, we may say, broadly speaking, that the first effort towards the establishment of a common type of civilisation was, if not closed, yet arrested by the dissolution of the Roman Empire in the West. Close thereupon came the rise of Islam, tearing away the Eastern provinces, and creating a rival type of civilisation—though a type largely influenced by the Greco-Roman—which held its ground for some centuries, and has only recently shown that it is destined to vanish.

The beginnings of the second effort toward the unification of civilised mankind may be observed as far back as the eleventh and twelfth centuries. Its effective and decisive action may, however, be assigned to the fifteenth, when the spread of literary and philosophic culture, and the swift extension of maritime discovery, ushered in the modern phase wherein we have marked its irresistible advance. This phase differs from the earlier one both in its range—for it embraces the whole earth and not merely the Mediterranean lands—and in its basis, for it rests not so much upon conquest and religion as upon scientific knowledge, formative ideas, and commerce. Yet even here a parallelism may be noted between the ancient and the modern phase. Knowledge and ideas had brought about a marked assimilation of various parts of the ancient world to each other before Roman conquest completed the work, and what conquest did was done chiefly among the ruder races. So now, while it is knowledge and ideas that have

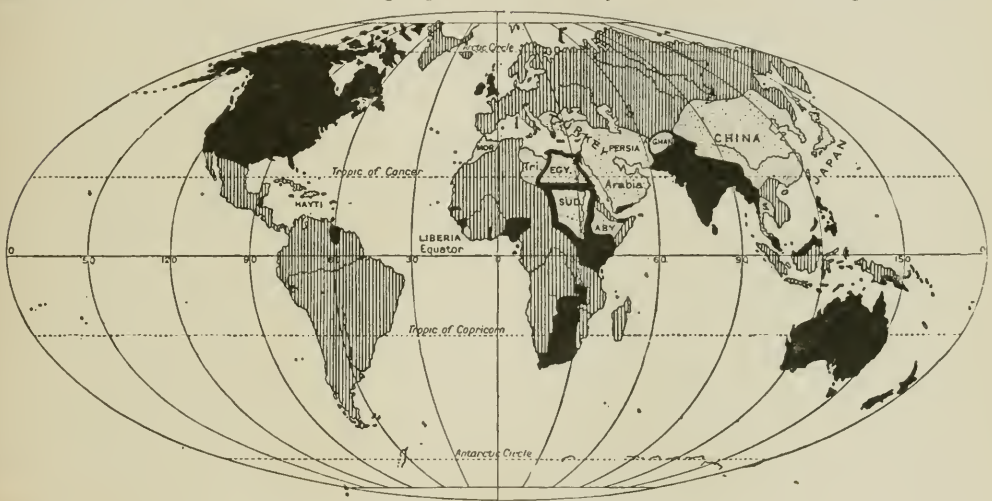
Conquest and Civilisation

worked for the creation of a common type among the peoples of European stock, conquest has been a potent means of spreading this type in the outlying countries and among the more backward races whose territories the European nations have seized.

Language a Unifying Influence

The diffusion of a few forms of speech has played a great part in both phases. Greek was spoken over the eastern half of the Roman world in the second century A.D., though not to the extinction of such tongues as Syriac and Egyptian. Latin was similarly spoken over the western half, though not to the extinction of the tongues we now call Basque and Breton and Welsh; and Latin continued to be the language of European languages which retain a world importance. English, German, and Spanish are pre-eminently the three leading commercial languages. They gain ground on the rest, and it is English that gains ground most swiftly. The German merchant is no doubt even more ubiquitous (if the expression be permitted) than is the English; but the German more frequently speaks English than the Englishman or American speaks German.

It has already been observed that assimilation has advanced least in the sphere of institutions, ideas, and literature. The question might, indeed, be raised whether the types of thought, of national character, and of literary activity represented by the five or six leading nations are



THE EUROPEANISATION OF THE WORLD

European civilisation is being diffused all over the earth, superseding or essentially modifying the older local types. The solid black portions of this map represent territory under Anglo-Saxon control; the shaded parts are under other European control, and the dotted parts under Asiatic and African control.

religion, of law, of philosophy, and of serious prose literature in general till the sixteenth century. So now, several of the leading European tongues are spoken far beyond the limits of their birthplace, and their wide range has become a powerful influence in diffusing European culture. German, English, Russian, Spanish, and French are available for the purposes of commerce, and for those who read books over nineteen-twentieths of the earth's surface. The languages of the smaller non-European peoples are disappearing in those places where they have to compete with these greater European tongues, except in so far as they are a medium of domestic intercourse. Arabic, Chinese, and in less degree Persian are the only non-

not rather tending to become more accentuated. The self-consciousness of each nation, taking the form of pride or vanity, leads it to exalt its own type and to dwell with satisfaction on whatever differentiates it from other types. Nevertheless there are influences at work in the domain of practice as well as of thought, which, in

Linking the Nations Together

creating a common body of opinion and a sense of common interest among large classes belonging to these leading nations, tend to link the nations themselves together. Religious sympathy, or a common attachment to certain doctrines, such as, for instance, those of Collectivism, works in this direction among the masses, as the love of science or of art does among

sections of the more educated class. As regards the peoples not of European stock, who are, broadly speaking, the more backward, it is not yet possible to say what will be the influence of the European type of culture upon their intellectual development.

The material side of their civilisation will after a time conform to the European type, though, perhaps, to forms that are not the most progressive; and even such faiths as Buddhism and Islam may lose their hold on those who come most into contact with Europeans. But whether these peoples will produce any new types of thought or art under the stimulus of Europe, as the Teutons and Slavs did after they had been for centuries in contact with the relics of Greco-Roman culture, or whether they will be overborne by and merely imitate and reproduce what Europeans teach them—this is a question for conjecture only, since the data for predictions are wanting.

It is a question of special interest as regards the Japanese, the one non-European race which, having an old civilisation of its own, highly developed on the artistic side, has shown an amazing aptitude for appropriating European institutions and ideas. Already a Japanese physiologist has taken high rank among men of science by being one of the discoverers of the bacillus of the Oriental plague.

DOES HISTORY MAKE FOR PROGRESS?

ONE of the questions which both the writers and the readers of a History of the World must frequently ask themselves is whether the course of history establishes a general law of progress. Some thinkers have gone so far as to say that this must be the moral of history regarded as a whole, and a few have even suggested that without the recognition of such a principle and of a sort of general guidance of human affairs towards this goal, history would be unintelligible, and the doings of mankind would seem little better than the sport of chance.

Whatever may be thought of these propositions as matters of theory, the doctrine of a general and steady law of progress is one to which no historian ought to commit himself. His business is to set forth and explain the facts exactly as they are; and if he writes in the light of a theory he is pretty certain to be unconsciously seduced into giving undue prominence to those facts which make for it. Moreover, the question is in itself a far more complex one than the simple word "progress" at first sight conveys. What is the test of progress? In what form of human advance is it to be deemed to consist? Which of these forms is of the highest value? There can be no doubt of the advance made by man in certain directions. There may be great doubt as to his advance in other directions. There may possibly be no advance but even retrogression, or at least signs of an approaching retrogression, in some few directions. The view to be taken of the relative importance of these lines of movement is a matter not so much for the historian as for the philosopher, and its discussion would carry us away into fields of thought not fitted for a book like the present. Although, therefore, it is true that one chief interest of history resides in its capacity for throwing light on this question, all that need here be said may be expressed as follows:

What is the Test of Progress?

What Mankind has Achieved

There has been a marvellous advance in man's knowledge of the laws of Nature and of his consequent mastery over Nature.

There has been therewith a great increase in population, and, on the whole, in the physical vigour of the average individual man.

There has been, as a further consequence, an immense increase in the material comfort and well-being of the bulk of mankind, so that to most men necessaries have become easier of attainment, and many things which were once luxuries have become necessaries.

Against this is to be set the fact that some of the natural resources of the world are being rapidly exhausted. This would at one time have excited alarm; but scientific discoveries have so greatly extended man's capacity to utilise other sources of natural energy, that people are disposed to assume that the loss of the resources aforesaid will be compensated by further discoveries.

As to progress other than material—that is to say, progress in intellectual

capacity, in taste, in the power of enjoyment, in virtue, and generally in what is called happiness—every man's view must depend on the ideal which he sets before himself of what constitutes happiness, and of the relative importance to happiness of the ethical and the non-ethical elements which enter into the conception. Until there is more agreement than now exists or has ever existed on these points, there is no use in trying to form conclusions regarding the progress man has made. Moreover, it is admitted that nearly every gain man makes is accompanied by some corresponding loss —perhaps a slight loss, yet a loss. When we attempt to estimate the comparative importance of these gains and losses, questions of great difficulty, both ethical and non-ethical, emerge; and in many cases our experience is not yet sufficient to determine the quantum of loss. There is room both for the optimist and for the pessimist, and in arguing such questions nearly everybody becomes an optimist or a pessimist. The historian has no business to be either.

The Gain and the Loss

There is another temptation besides that of delivering his opinion on these high matters, of which the historian does well to be aware—I mean the temptation to prophesy. The study of history as a whole, more inevitably than that of the history of any particular country or people, suggests forecasts of the future, because the broader the field which we survey the more do we learn to appreciate the great and wide-working forces that are guiding mankind, and the more therefore are we led to speculate on the results which these forces, some of them likely to be permanent, will tend to bring about.

This temptation can seldom have been stronger than it is now, when we see all mankind brought into closer relations than ever before, and more obviously dominated by forces which are essentially the same, though varying in their form. Yet it will appear, when the problem is closely examined, that the very novelty of the present situation of the world—the fact that our mastery of Nature has been so rapidly extended within the last century, and that the phenomena of the subjugation of the earth by Europeans and of the ubiquitious contact of the advanced and the backward races are so unexampled in respect of the area they cover—that all predictions must be uttered with the greatest caution, and due allowance made for elements which may disturb even the most careful calculations. It may, indeed, be doubted whether any predictions of a definitely positive kind—predictions that such and such things will happen—can be safely made, save the obvious ones which are based on the assumption that existing natural conditions remain for some time operative.

Modern Mastery of Nature

Taking this assumption to be a legitimate one, it may be predicted that population will continue to increase, at least till the now waste but habitable parts of the earth have been turned to account; that races, except where there is a marked colour line, will continue to become intermingled; that the small and weak races, and especially the lower set of savages, will be absorbed or die out; that fewer and fewer languages will be spoken; that communications will become even swifter, easier, and cheaper than they are at present; and that commerce and wealth will continue to grow, subject, perhaps, to occasional checks from political disturbance.

A Glimpse into the Future

There are also some negative predictions on which one may venture, and with a little more confidence. No new race can appear, except possibly from a fusion of two or more existing races, or from the differentiation of a branch of an existing race under new conditions, as the Americans have been to some slight extent differentiated from the English, and the Brazilians from the Portuguese (there having been in the latter case a certain admixture of negro blood), and as the Siberians of the future may be a different sort of Russians. Neither is any new language likely to appear, except mere trade jargons (like Chinook or pigeon English), because the existing languages of the great peoples are firmly established, and the process of change within each of these languages has, owing to the abundance of printed matter, become now extremely slow. Conditions can hardly be imagined under which such a phenomenon as the development of the Romance languages out of Latin, or of Danish and Swedish out of the common Northern tongue of the eleventh century, could recur.



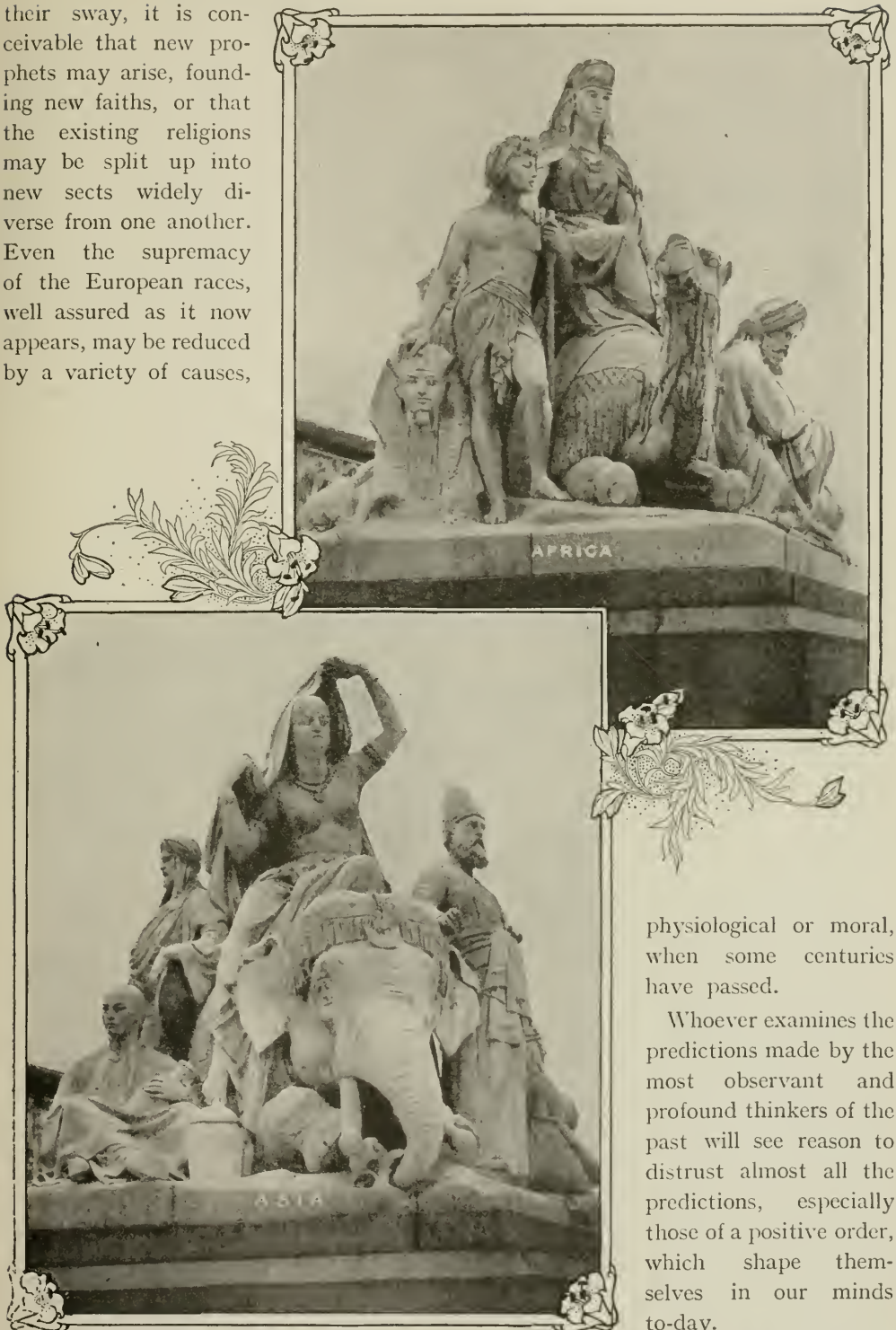
THE PEOPLES OF THE WORLD AT PEACE
From the statuary groups on the Albert Memorial.

any forecast. Conditions might conceivably come into action which would split up some or most of the present great States, and bring the world back to an age of small political communities.

So, too, though the lower forms of paganism are fast vanishing, and the four or five great religions are extending

It may seem natural to add the further prediction that the great States and the great religions will continue to grow and to absorb the small ones. But when we touch topics into which human opinion or emotion enters, we touch a new kind of matter, where the influences now at work may be too much affected by new influences to permit of

their sway, it is conceivable that new prophets may arise, founding new faiths, or that the existing religions may be split up into new sects widely diverse from one another. Even the supremacy of the European races, well assured as it now appears, may be reduced by a variety of causes, physiological or moral, when some centuries have passed.



THE PEOPLES OF THE WORLD AT PEACE
From the statuary groups on the Albert Memorial.

Whoever examines the predictions made by the most observant and profound thinkers of the past will see reason to distrust almost all the predictions, especially those of a positive order, which shape themselves in our minds to-day.

JAMES BRYCE

SUMMARY OF WORLD HISTORY

WITH

A CHRONOLOGY OF TEN THOUSAND YEARS

By Arthur D. Innes, M.A.

WITHIN the memory of living men, the most advanced peoples of the world believed that the world itself had been created not 6,000 years ago. We have all learned now that the globe itself, that life—and long later mankind—came into being thousands, hundreds of thousands—it may be millions—of years ago.

How long precisely, none can tell. What we do know with certainty is that before the continents finally emerged in their present shape there was an Ice Age, immediately preceded by what is called the Drift Age, and that as early as the Drift Age man, the maker of implements, lived, and did battle with the cave bear and other monsters. Where man first came into being, how he spread over the globe, how the great races acquired their characteristics, we can only conjecture.

Wherever and whenever man appeared, the earliest traces show him to have been a sociable animal living in communities.

The Birth of the Nations

The earliest unmistakable traces of civilisation, order, polity, are found in the basins of the Nile and the Euphrates, dating probably as far back as ten thousand years ago. The people who built the Pyramids had already advanced far in the knowledge which gives man the mastery over Nature; and the Pyramids were built certainly 3,000, and probably nearer 5,000, years before the Christian era. And while those pristine civilisations rose and fell in Egypt, civilisations were rising and passing away in Mesopotamia also.

In the fourth millennium there appears first a people with new characteristics—the Semitic race, gradually dominating the Mesopotamian civilisation, spreading westward in successive waves to the Mediterranean, surging into Egypt and out again; creating the Empires of Babylonia and of Assyria, and the Phœnician and Canaanite nations. And while the Semite Empires rose and fell, and Egypt held upon her ancient way, still mightier nations were coming to birth. The great Aryan or Indo-European migrations began, the Celt, the Latin, and the Hellene rolling westward by the Euxine and the Northern Mediterranean; while another group passed southward, to the East of the Semites, spreading the Aryan conquest over the greater part of the Indian peninsula.

Of the doings of the great Semitic Powers in the second millenium B.C. we have some knowledge from the Hebrew records; and

Conflicts of Ancient Peoples

year by year fresh light is thrown on those records by inscriptions and tablets newly discovered or newly deciphered, Egyptian, Assyrian, or Hittite. Of the Hittite or early Syrian dominion we know little enough, except that it successfully defied the invading armies of Assyrian kings and Egyptian Pharaohs. Before 1500 the Semite conquerors of Egypt, the Hyksos, were driven out—an event associated by some authorities with the Hebrew Exodus. From this time the ebb and flow of Egyptian and Assyrian dynasties are more definitely recorded. In the closing centuries the prosperity of Tyre and Sidon reached its height, and the theocratic Hebrew nationality formed a kingdom. We become aware of Hellenic or kindred Powers in Asia Minor, at Troy, in Crete, at Mycenæ; of Achæans and Danaans in Egypt.

Before another five hundred years had passed, throughout the coasts and islands of

The First Formation of States

the Ægean Sea, Æolians, Ionians, Dorians established themselves in cities, and every city rapidly grew into a highly-organised State. Over the Mediterranean, to Southern Italy, to Sicily, to Marseilles, the new Greek civilisation carried its commerce and its culture. In Italy the Latin races were in like manner forming themselves into city-states, developing conceptions of Government undreamed of by Oriental minds. Rome was founded, and acquired a leadership. Throughout the Hellenic and the Latin world the idea of civic freedom took root; the primitive monarchical systems disappeared, and, through revolutions and temporary despotisms, sometimes peaceful

TIME-TABLE OF THE WORLD: B.C. 8000 to 500

This Chronology, prepared as a companion to the Summary of the World's History, sets forth in tabular form for ready reference the events dealt with in the narrative on opposite pages

B.C.		B.C.
8000	Early civilisation of the Nile Basin. Egypt before the Pyramids.	8000
7000	Asiatic invasion of Egypt. Pre-Semitic civilisations of the Euphrates Basin. Susa founded.	7000
6000	Invasion of Egypt by dynastic race, 5800. Mena rules all Egypt. First dynasty, 5500. Babylonian kingdoms of Sumer and Akkad. Ea founds Eridu and civilises Babylonia	6000
5000	Egypt: The Pyramid builders. Great Pyramid built by Khufu (Cheops), 4700. Earliest monuments to kings in Babylonia, 4700.	5000
4000	Egypt invaded from the north. First, or Babylonian, Semitic wave in the Euphrates Valley. Rise of Babylonian kingdoms. Sargon and Naram-Sin, Semitic rulers of Akkad. Middle kingdom of Egpyt. Revival of art. Twelfth dynasty (3400). Gudea's rule in Babylon. Development of commerce, 3300.	4000
3000	Egypt invaded by the Hyksos, nomadic Semitic conquerors, the "Shepherd Kings." Fifteenth Dynasty (2500). Second Hyksos movement (2250). Conquest of Babylon by Elamites. Rule of Hammurabi (Amraphel of Gen. xiv.), 2129. Second, or Canaanite, Semitic wave, extending to the Mediterranean. First Aryan migration westward over Europe, and southward; conquest of Hindostan.	3000
2000	The Hyksos dominate Egypt. New kingdom. Eighteenth dynasty, 1580. Expulsion of the Hyksos, about 1560. Rise of Assyria. The Kassite dynasty in Babylon, about 1750–1130. Hittite Empire in Syria. Latin and Hellenic entry into Europe and Asia Minor. Third (Aramæan) Semitic wave, dominating W. Asia, but absorbed in existing states.	2000
1500	Far East: Beginning of definite Chinese history, with the Chau dynasty. Egypt: Nineteenth dynasty, Sethos and the Ramesides; struggle with Hittite Empire. Western Asia: Burnaburiash, 1380. Pashe dynasty in Babylon, 1130–1000. Period of Phœnician prosperity. Rise of the United Kingdom of the Hebrews. Crete, Troy, and Mycenæ. The Ionic and Doric migrations.	1500
1000	Western Asia: The Hebrew kingdom divided into Judah and Israel or Samaria. Rise of Aramæan kingdom of Syria. Chaldean domination in Babylon. Assyrian Middle Empire. Egypt: Twenty-second dynasty ("Shishak" king of Egypt).	1000
900	Europe: Early monarchical governments replaced usually by aristocracies. Probable period of the Homeric poems. Western Asia: Successful resistance of Syria to Assyria. Appearance of the (Aryan) Medes in the East. Africa: Founding of Carthage.	900
800	Egypt: Domination of Ethiopians or Cushites. Western Asia: Assyrian New Empire; conquest of Syria, Samaria, and Babylon. Lydian and Phrygian kingdoms in Asia Minor. Europe: Development of city states in Greece and Italy. Lycurgan legislation of Sparta, about 800. Rome founded as a monarchy, 753. Spread of Greek colonies along Mediterranean coasts and islands.	800
700	Western Asia: Extension of Lydian kingdom in Asia Minor, 687–546. Irruption of Cimmerians from the North. Repulse of Sennacherib before Jerusalem. Decline of Assyria. Egypt: Invasion by Esarhaddon. Expulsion of Cushites. The Saitic dynasty. Europe: Between 700 and 500, sporadic displacement of aristocracies by "tyrannies," followed either by an oligarchical restoration or by democracies. Rome becomes head of the League of Latin cities. Far East: Japanese history begins.	700
600	Western Asia: Nabonaid, King of Babylon (556–538). Overthrow of Assyrian by New Babylonian Empire; the Babylonish captivity. Rise of Media, of which Cyrus, the Persian, makes himself master. Persian Empire: Overthrow of Lydia, New Babylonia, and Egypt. Aahmes (Amasis), 570–526. Far East: Confucius and Lao-Tse in China, and Buddha in India. Europe: Greek states consolidated. Athens: Solon 594. Pisistratidæ expelled, 510. Rome: Expulsion of the kings, about 510. The Commonwealth. Administration aristocratic: Army and legislative assembly on basis of land-ownership.	600
500 B.C.	Etruscan—pre-Latin—domination in Italy.	500 B.C.

and sometimes violent, the States took on for the most part a Republican form.

In the East an Aryan Power overthrew the last of the Assyrian-Babylonian dynasties; but these Persian conquerors became assimilated to the conquered nations. Fundamentally their empire was of the same type as its predecessors. The Persian sway, however, extended not only into Egypt but over the partly Hellenised Asia Minor; and the Ionic revolt, in the first year of the fifth century B.C. brought the spirit of the East and the spirit of the West into fierce collision. The great king hurled his hosts against defiant Hellas; at Marathon and at Salamis, Athens shattered his army and his fleets. Thenceforth, for a thousand years, the West was the aggressor.

But the rolling back of the "barbarian" tide was not the only glory that fell to Athens; in that same century the little state bore sons whose names stand in the front rank of the immortals for all time: Æschylus and Sophocles, Phidias, Pericles, Socrates, and Plato; in the next half century, Demosthenes; with others almost if not quite, on the same plane. The character of Athens, idealised, no doubt, is epitomised by Thucydides in the speech of Pericles. She was the sum of all that was best and noblest in Hellenism—its love of freedom, of beauty, of energy, of harmony, and its public spirit. Politically, the story of the period which followed Salamis is mainly one of the rivalry between Athens and Sparta; until the rise of Macedon, when King Philip made himself master of all Hellas.

Athens and the Greek Immortals

Then, with the beginning of the last quarter of the fourth century, Alexander the Great blazed upon the world, toppled the empires of Western Asia before him, conquered Egypt, and swept over the great mountain-barriers into India, where Buddhism had already begun to displace the ancient Brahmanism of the first Aryans. The Greek influences did not long linger in the far East after the great conqueror's death. His empire broke up. Asia west of the Euphrates remained, indeed, under the dominion mainly of one Grecian dynasty, the Seleucidæ; Egypt under that of another, the Ptolemies. Yet Alexander's attempts to blend East and West failed. Orientalism abode, unconquered, ineradicable; Hellenism prevailed almost after the fashion of British domination in India to-day, in the land, but not of it.

The Coming-up of Alexander

Meanwhile, the struggle between Aryans and non-Aryans had been running a partly separate course in the West. The Phœnicians of Carthage and the pre-Aryan Etruscans, the dominant power in Italy, made a joint assault on the Greeks of Sicily and the Latins of the mainland at the beginning of the fifth century. They were beaten back, but for a century the struggle continued between Rome and Veii. The great Celtic incursion of the Gauls threatened destruction to Rome, but completed the destruction of Etruria. In the fourth century and the first half of the third century B.C. Rome was chiefly engaged in the double task of achieving supremacy, passing into actual dominion among the Latin states, and of establishing the great Senatorial oligarchy, against whose stubborn resolution the Epirote Pyrrhus hurled himself in vain.

Just sixty years after Alexander's death began the sixty years' struggle between Rome and Carthage, in the latter years of which the genius of Hannibal was pitted against the grim persistence of the Roman oligarchy. Carthage fell; Rome triumphed, and with her triumph entered on her career of extended conquest.

The organisation which had ruled the city-state itself not ill, and raised it to an immense pre-eminence, sufficed also to maintain its powers of conquest, but not its political virtue. Rome's armies subdued the divided and disorganised realms which more or less recognised the overlordship of Macedon; they made the Ptolemies and the Seleucidæ acknowledge their supremacy; they shattered the new barbarian hordes, which began to pour across the Alpine passes, and the African tribes of Numidia. But the lofty public spirit was gone which had made Rome so great when she was battling for life. Reformers arose, only to prove that there was no power in the constitution strong enough to enforce reform. Victorious generals with their legions behind them began to dictate legislation; Marius and Sulla, democrats or reactionaries, signalised their political successes by slaughtering hecatombs of their opponents.

The Triumph of Rome

At last, statesmanship and generalship found their supreme incarnation in one person, Julius Cæsar. For many years one of the two foremost men in the

TIME-TABLE OF THE WORLD: B.C. 500 to 1

Collision of East and West. The Glory of Greece. Alexander and His Conquests. The Rise of Rome. Overthrow of Carthage and the Establishment of the Roman Empire

B.C.	The East and Africa	Europe	B.C.
500	GREECE: Revolt of Ionian Greeks from Persia, 499. Liberation from Persia of Greek States in Asia Minor. Revolt of Egypt from Persia: re-conquest.	GREECE: Repulse of Persia at Marathon (490), Salamis (480) and Plataea (479) and of Carthage by Syracuse at Himera (480). ROME: Increase of political power of Plebeians. Tribunes. First Roman Legal Code (the XII. Tables).	500
450	Egypt again independent of Persia.	GREECE: Age of Pericles, the great Athenian dramatists, and Phidias. Struggle for supremacy between Athens and Sparta. ROME: Decadence of Etruscan power. Progress of Plebeians in obtaining administrative power.	450
400	Revival of Persian energy under Artaxerxes Ochus.	GREECE: Socrates and Plato. Spartan and Theban supremacies. ROME: Invasion by the Gauls. The land question: the Licinian Laws. Establishment of new "Senatorial" oligarchy. Extension of Roman military settlements or colonies.	400
350	Overthrow of Persia by Alexander; India invaded. Partition of Alexander's Empire. The Ptolemies in Egypt, and the Seleucidæ in Asia. Friendly relations between Seleucus and Chandragupta of Hindostan.	GREECE: Philip of Macedon. Demosthenes at Athens. Aristotle. Conquests of Alexander the Great, 334-322. ROME: Second Roman treaty with Carthage. Dissolution of Latin League. Supremacy of Rome in Italy. Samnite wars.	350
300	Contests between Syria (Seleucidæ) and Egypt (the Ptolemaic dynasty).	ROME: Legislative power of Plebeian Comitia Tributa established. Pyrrhus in Italy and Sicily. Treaty between Rome and Egypt. Senatorial supremacy at Rome. First Punic War (264-241). GREECE: Rise of the Achæan League.	300
250	Asoka, king of Maghada (Hindostan), Buddhist. Extension of the Seleucid dominion under Antiochus the Great. Rise of the Parthian dominion of the Arsacidæ. Fall of Carthage, 202.	Carthaginian power established in Spain. ROME: Second Punic War, 218-201. Hannibal in Italy, 218-203. Scipio in Spain, 211-206. Zama, 202. Extension of Roman dominion over Spain and North Africa.	250
200	Wars between Parthia and the Seleucidæ. Maccabean revolt of Judæa. Antiochus Epiphanes conquers Egypt, but retires. Egypt and Syria become Roman protectorates.	Organisation of provinces subject to the Imperial Republic. History of Europe merges in that of ROME. Collision of Rome with (1) Macedon; (2) the Syrian kingdom of the Seleucidæ. Macedon becomes a Roman province. Rome assumes protectorate of Egypt and Syria.	200
150	Nabatæan State in Arabia. A Tartar kingdom established in east of Parthia. Jugurthan War in Africa.	Third Punic War, and destruction of Carthage, 146. Greek States absorbed into province of Macedonia. Development of political power of (1) demagogues; (2) soldiers. The Gracchi, 133-121. Conquest of South Gaul: defeat of Teutones and Cimbri by Marius.	150
100	Mithradatic wars, 88-63. The East, to the Euphrates, brought under Roman dominion. Judæa: fall of the Maccabees.	Social war. Marius and Sulla. The Proscriptions. The Sullan Constitution, 81. Pompey. Rise of Julius Cæsar. The East brought under Roman dominion. Cæsar conquers Gaul; lands in Britain.	100
50	Scythian or Tartar incursion into India, and admixture with Punjab races. Egypt becomes a Roman province, 30.	Overthrow of Pompey: Cæsar virtual emperor. Murder of Cæsar, 44. Rivalry of Antony and Octavian, 43-30. The Principate, or Empire, established under Augustus (Octavian) in virtue of the Imperium Proconsulare (27) and Tribunicia Potestas (23). The Empire organised. Cicero, Virgil, Livy, Horace.	50
1 B.C.			1 B.C.

Republic, he finally crushed his rival Pompeius and became acknowledged head of the state. Before he could complete the work of reconstruction, Cæsar fell beneath the daggers of Republican enthusiasts; but ere many years had passed his adopted son Octavian triumphed over all rivals, and established the Principate or Empire, the absolute dominion of one ruler over the whole Roman world—although that dominion was still maintained under the Republican forms.

The Birth of Christ

A tremendous event in itself, the reign of Augustus also witnessed one which has had a great influence on the history of the world—the birth of Christ. His ministry, to which perhaps the term event should be applied, was during the reign of the second Emperor, Tiberius. The new faith born on the soil of Judæa was to modify profoundly all the ideals, social and political as well as theological and personal, of the entire Western world; but for many years its adherents remained nothing more than a persecuted yet steadily growing sect; suspected and hated as anarchists rather than as misbelievers, in a world where the rankest and wildest superstitions lived side by side with a general intellectual scepticism.

Rome in her Decline

For four centuries the Imperial city ruled over nearly the whole known world. Beyond the Euphrates on the east, beyond the Rhine and the Danube, she could maintain no permanent footing; within her own borders it seemed as though her sway became a part of the natural order—so much so that when her power had passed away her very conquerors did her homage and took upon themselves titles as her officers.

But the overthrow was yet a long way off. The reconstruction organised by Augustus and his Ministers was developed by able rulers—Tiberius, Trajan, Hadrian, the Antonines—during some two hundred years, in spite of intervals when a murderous tyranny or a feeble incompetence occupied the throne of the Cæsars. From the Pillars of Hercules to the river of Mesopotamia, northward as far as Britain, southward to the deserts of Africa, Roman civilisation, Roman law and justice, Roman military discipline, and Roman roads maintained the Roman peace.

Then came an era when the Imperial purple became the prize of successful generals acclaimed by their legions; and the frontier armies, themselves largely formed out of Teutonic or other semi-"barbarian" tribes, found themselves face to face with new barbarian hordes which for another century and a half they held in check. But the tremendous external pressure on frontiers so vast made it imperative that the Government should be somewhat decentralised. At the end of the third century Diocletian parted the empire into four great divisions. The new system could not endure; Constantine the Great again became sole emperor. Under him Christianity was at length adopted as the state religion; the Church herself became a fundamental factor in the political system; and the political centre of gravity was transferred from Rome to Byzantium.

Fall of Rome and Rise of Goths

Again the empire was partitioned, and then, for a brief while before the end of the fourth century, united again under Theodosius. But the end was at hand. For a few years the great general Stilicho held the Teutonic Goths at bay in Italy, while Vandals and Sueves poured through Gaul into Spain. Then, early in the fifth century, Stilicho died. Alaric led his conquering hordes to the gates of Rome, and sacked the Eternal City. His successor, Ataulf, took his Goths away, to drive the Vandals out of Spain into Africa, and set up a great western kingdom on their own account. But after the Goths, fresh barbarians swarmed in—Tartar Huns under Attila, who wrought huge devastation and then vanished for ever; then fresh Teutonic armies, which took possession of Italy, though in the East the Empire still held its own. And in Gaul the (German) Franks under their king, Clovis (Chlodwig, Ludwig), established the dominion which was to give its name to France when the Frankish element had almost passed out of the country. Far-away Britain had already been abandoned, and was falling a prey to the Saxons and the Angles, the "English" who were driving the earlier Celtic inhabitants before them into the mountain fastnesses of the west and north. Again, in the East, in the sixth century, the empire centred at Byzantium asserted its power. Justinian is memorable for that great codification of Roman Law on which the legal systems of half the jurists in Europe have been based. His reign is famous also for the exploits of his brilliant

Beginning of Byzantium

TIME-TABLE OF THE WORLD: A.D. 1 to 500

Organisation of the Roman Empire. The Rise of Christianity. Partition of the Empire. The Barbarian Invasion and Fall of the Western Empire. Rise of the Franks

A.D.	The East and Africa	Europe	A.D.
1		Beginning of the Christian Era. Imperial system completed under Tiberius. Rhine, Danube, and Euphrates form frontiers of the Empire. Caligula and Claudius emperors. BRITAIN: Roman occupation. Spread of Christianity.	1
50	Destruction of Jerusalem by Titus, 70.	Nero emperor: Galba, Otho, Vitellius. Vespasian: the "Flavian" emperors. Nerva chosen by Senate in succession to Domitian. The "Five good Emperors," 96-180. Succession of Trajan, 98.	50
100	Arabia designated as a Roman province. Trajan's expedition to the Persian Gulf unsuccessful. Eastward expansion of Rome checked.	Trajan's campaigns in Dacia. Administration organised under Hadrian. Roman law systematised by Salvius Julianus Antoninus Pius.	100
150	Establishment of Roman supremacy in Armenia.	Development of Roman civilisation in Gaul and Spain. Campaigns of Marcus Aurelius in Pannonia. The legions in Illyria, largely composed of "barbarians," acquire power. After Commodus, series of emperors by military selection.	150
	Successful campaigns of Severus against Parthians.	Severus temporarily assigns the West to Clodius Albinus.	
200	Persian kingdom of the Sassanides displaces the Parthian Empire.	Further systematising of Roman law by the *juris consulti*, Ulpian, etc. Increasing pressure of Teutonic tribes on the frontier. Campaigns of Maximinus. Decius emperor: official persecution of Christianity.	200
250	Overthrow of Emperor Valerian in the East by the Persians. Destruction of Palmyra in the reign of Zenobia.	Advance of the Goths and Alemanni checked by Claudius and Aurelian. Diocletian emperor. Division of the Empire under a subordinate "Augustus" and two subordinate "Cæsars"	250
300	Extension of Buddhism in China.	Last persecution of Christians under Diocletian. Constantine the Great. Constantinople (New Rome, Byzantium) is made the centre of the Empire. Christianity established as the State religion Council of Nicæa.	300
350	Unsuccessful Roman campaign against Persia.	Temporary revival of Paganism under Julian the Apostate. Advance of the Goths checked by Theodosius. Empire separated into East and West, 396. Alaric the Visigoth held in check in the Western Empire by Stilicho. Westward movement of Vandals through Gaul to Spain.	350
400	Vandals, expelled from Spain, established in Africa.	Sack of Rome by Alaric, after death of Stilicho. End of the Roman occupation of Britain. The Goths withdraw westwards. Establishment of the Visigothic kingdom of Theoderic in Spain and Aquitania. Irruption of the Huns under Attila.	400
450		BRITAIN: The coming of the Saxons. Barbarian "Patricians" set up and depose Western Emperors. Odoacer, "King" in Italy, recognises supremacy of the Eastern Emperor Zeno. Theoderic the Ostrogoth founds a Teutonic State in Italy.	450
500 A.D.		Rise of the Franks in Gaul, under Clovis.	500 A.D.

general, Belisarius, who destroyed the Vandal kingdom in Africa, restored the Imperial rule in Italy, and recovered provinces in Asia which had been in danger of falling into the grip of the now aggressive rulers of Persia. But in the West, the success was only temporary. Under pressure of Tartar or Slavonic hosts from the East, a fresh Teutonic swarm, the Lombards, entered Italy and mastered the North. The significance of Rome now lay in the supremacy of her pontificate, unacknowledged in the East.

In Spain, the Gothic supremacy gave promise of an orderly and just government. In the wide realms of the Franks anarchy and bloodshed were almost ceaseless. In neither did the dominant Teutons drive out the older Iberian and Celtic populations, as the English were doing in the open lands of the northern island. In both, the German institutions were developing into that feudal system which was utterly incompatible with the maintenance of a strong central rule, since it enabled a powerful vassal to bid defiance to his nominal suzerain. Throughout the sixth and seventh centuries progress was stayed in ancient Gaul; in Spain it was to be revolutionised by a new invader.

Eastward, at the end of the sixth century, the Slavonic wave was surging upon the empire's northern frontier; in Asia, Persia was again forcing her way towards the Mediterranean. Both were checked by the Emperor Heraclius early in the seventh century. But, meantime, a new Power had come into being. Mohammed had arisen. Inspired by the fanatical fervour of Islam, the warriors of Arabia, soon to be known as the Saracens, swept all before them. They did not at first make Europe their objective; the Caliphs carried their conquering arms over Western Asia, into Egypt, and along the southern coasts of the Mediterranean. Then they began to beat against the empire itself. The eighth century had hardly opened when they poured into Spain; dissensions among the Gothic chiefs gave them prompt victory. They swept up to the Pyrenees; but their advance was stayed by Charles Martel, the virtual lord of the Frankish kingdom. On the East their armies assailed Constantinople, but were disastrously repulsed by the Emperor Leo the Isaurian.

Islam in Being

Now, for the first time, Papal sanction was demanded and obtained for a change of dynasty. The last Merovingian king of the Franks was deposed in favour of Pepin, the son of Charles Martel. He was succeeded by his son, Karl, a German of the Germans, despite the French form of his popular title Charlemagne.

During his long reign the Moors in Spain were driven back beyond the Ebro; the Saxon tribes across the Rhine were forced to submit and to accept Christianity; the Lombard oppressors of Italy were vanquished; and on the Pope's initiative, Charlemagne himself was acclaimed and crowned at Rome as emperor and successor of the Cæsars. All of the West that remained to Byzantium was Southern Italy. The revived empire came into being on Christmas Day, A.D. 800.

Charlemagne and His Empire

The great dominion and the organisation constructed by Charlemagne fell into divisions after his death. The lands east of the Rhine remained German; on the west, the Teutonic forces yielded to the Latinised Celtic spirit. Slowly France and Germany emerged. In England the supremacy among the rival peoples passed from the Angles of Northumbria or of the Midlands to the Saxon house of Wessex. Hungary was held by the Mongolian Avars, presently to be displaced by their Magyar kinsmen; otherwise Eastern Europe, Illyria, as well as the Trans-Danube districts, was being gradually possessed by the Slavonic races. Their westward movement was decisively stayed in the tenth century by Henry the Fowler and Otto the Great, who, for the second time, revived the "Holy Roman Empire" in the West in a form which effectively translated it into the "German Empire." Meanwhile, the Vikings from the north first ravaged the western coasts, then wrung great provinces from the kings of England, and of "Francia," preparing for the day when the Norman spirit should set the tone of Western Europe.

In the Eastern Mohammedan world the Saracen dominion was passing to Tartar races—to the Seljuk Turks or the Ghaznavid Turks, and later to the Ottomans; the genuine Saracens had seen their greatest days in the times of Harun-al-Raschid, when the Frankish Empire of Charlemagne was being dismembered. Europe in the eleventh century had passed, or was passing, into what is distinctively known as the Feudal Period, or later Middle Ages. Everywhere it became

Birth of Feudalism in Europe

TIME-TABLE OF THE WORLD: A.D. 500 to 1000

Teutonic Races Dominate the West. Rise of Mohammed; extension of Mohammedan Rule from Cordova to Kabul. Western Empire Revived by Charlemagne and again by Otto

A.D.	The East and Africa	Europe	A.D.
500	Overthrow of the African Vandal kingdom by Belisarius, general of Justinian.	Franks predominant on Rhine and in Gaul. Justinian emperor at Constantinople. Roman Law codified in the Institutes. Overthrow of Gothic kingdom in Italy by Belisarius. Advance of Saxons (South) and Angles (East) [in England.	500
550	Buddhism introduced in Japan. Advance of Persia against the Eastern Empire.	Lombard conquest of North Italy. Spread of Celtic Christianity in Britain by St. Columba. Pontificate of Gregory the Great. Latin Christianity introduced into Kent by St. Augustine, 597.	550
600	Overthrow of Persia by Emperor Heraclius. MOHAMMED. The Hegira (622). Conquest of Egypt and Syria by the Caliphs Abu-bekr and Omar. Conquest of Persia, and extension of Caliphate over West Asia.	ENGLAND: Supremacy of Northumbria. ITALY: North under Lombard dominion; South attached to the Eastern Empire. Avar dominion in Hungary. Slavonic settlement in Servia.	600
650	Saracens (Caliphate) attack the Empire in the East and in Africa. Rise of the Shiite sect of Mohammedans.	ENGLAND: Final overthrow of Paganism. Triumph of Roman over Celtic Christianity. FRANKS: Dukes of Austrasia (East Franks) dominate the Merovingian kings.	650
700	Revival in India of Brahmanism, gradually developing into modern Hinduism.	Saracens (or Moors) overrun Spain. Saracen advance checked by Emperor Leo the Isaurian at Constantinople, and by Charles Martel at Tours. Beginning of the Iconolastic controversy. Discussions between Papacy and Eastern Church.	700
750	Division of the Caliphate into Eastern (Abassid) at Bagdad and Western (Ommeiad) at Cordova. Rise of the Turks in the Caliphate armies. Harun-al-Raschid Caliph at Bagdad.	ENGLAND: Supremacy of Mercia. FRANKS: Fall of the Merovingian dynasty. Pepin the Short founds the Karling or Carolingian Dynasty. Empress Irene at Constantinople. FRANKS: Karl the Great (Charlemagne) succeeds Pepin as king of the Franks. He drives the Moors beyond the Ebro, conquers the Lombards, and is crowned as Roman Emperor by the Pope. (800).	750
800	Increasing power of the Western Caliphate.	Subjugation of the Saxons by Charlemagne. Division of Charlemagne's dominion among his grandsons. ENGLAND: Supremacy of Wessex under Egbert. The Danes, or Northmen, harry the coasts of Europe.	800
850	Fatemide Mohammedan dynasty established in Egypt. Decline of the Abassid Caliphs.	Carolingian dominion divided into West (Francia), East (Franconia, Germany), Central (Burgundy) and Italy. Pressure of Slavonic peoples on East Germany. ENGLAND; Alfred the Great. Settlement of the Danes in the Danelagh. Organisation of Government, Law, etc. Advance of Magyars in Hungary. Iceland colonised, 874-950.	850
900		FRANCE: Duchy of Normandy ceded to Rollo. NORWAY united under Harold Haarfager. ENGLAND: House of Wessex kings of all England. GERMANY: Henry the Fowler, Saxon King of Germany, and his son Otto the Great, check the Magyar advance. Pressure of Slavs on Eastern Empire.	900
950	Recovery of Eastern Provinces from the Saracens by the Byzantine Empire.	EMPIRE: Otto becomes King of Italy and Roman Emperor. The Holy Roman Empire is from this time definitely German. FRANCE: The Capet dynasty replaces the Carolingian. Slavs driven back by Eastern Emperors. Russians Christianised. Slav dominion established in Poland.	950
1000 A.D.			1000 A.D.

the object of the great rulers to establish a strong central government, and of the Papacy to establish a supremacy over all governments. Feudalism and the Papacy were the rivals of the centralising tendency.

England and France

In England, where a Norman dynasty and Norman aristocracy established themselves, the unifying process was astonishingly rapid. The country was comparatively shielded from Papal interposition by distance. A series of vigorous and able monarchs prevented pure feudalism from ever getting developed; it resulted that in the thirteenth century baronage and people made common cause in imposing not feudalism, but constitutional control over the kings. In France, the victory of the crown over feudalism was far slower; the feudatories were too powerful, and among them were the kings of England, as dukes or counts of great territories within France. The Hundred Years' War was, in fact, not so much a contest for the French crown as a struggle between the French kings and their mightiest vassals. It was not till the English had been finally expelled that Louis XI. was enabled to make the crown supreme in France. There, as in England, the monarchy never submitted to the Papacy; it was so far victorious in that struggle that in the fourteenth century the seat of the Roman pontificate was transferred to Avignon, and the Pontiff himself became literally the creature of France.

Christendom and the Crusades

Spain and Byzantium alike remained for the most part outside the general European current. They were the buffers between Christendom and Islam. In the Spanish Peninsula the Moors were held more or less at bay, but the land was not freed from their dominion till the close of the fifteenth century. Byzantium held the Turks at bay till the middle of the same century; then she fell for ever. Between the eleventh and thirteenth centuries, Christendom carried on against Islam the long contest of the Crusades; but the warriors who took part in those wars neither fought nor organised as though themselves forming an organic body; the Christian hosts in Palestine were mere miscellaneous gatherings, united only in the temporary fits of enthusiasm. The Holy Sepulchre was gained, but within a century it was lost again; the crusading cause was one to which not states, but individuals only, devoted themselves. Conquest would have been possible only if the Crusaders had gone forth prepared to make their own homes in Asia. The East could not be held by garrisons with no abiding interest there.

Islam, then, held, and more than held, its own against the West; while during these same centuries it swept east and south through the passes of the Punjab into India, establishing Turk and Afghan kingdoms over most of the great peninsula; though the vast bulk of the population there held to the Hinduism which, born of the earlier Brahmanism, had almost expelled the Buddhist religion, which, however, had established itself permanently in Further India and China.

The might of Islam could have been overthrown only by a united Christendom, and for that the disintegrating forces were too great. England and, more slowly, France freed themselves from feudalism. But Christendom required one head. If the Papacy had stood by the empire, feudalism might have been broken down, and the emperor have become that head. But the Papacy aimed at supremacy for itself—the spiritual power was at war with the temporal. Anti-imperial factions claimed the support of the Church; the efforts at consolidation of the great Hohenstaufen Emperors, Barbarossa and Frederick II., were unsuccessful. The empire itself became only a congeries of kingdoms and dukedoms, counties, bishoprics, free cities, and leagues of cities, under the Austrian house of Hapsburg; while Rome, mighty from the days of Gregory VII. to Innocent III., lost its prestige in the captivity at Avignon and by the Great Schism which followed. In England Wycliffe's voice was raised; on the south-east of the empire the Hussite wars raged, premonitory of the Reformation.

Empire, Feudalism, & Papacy

In 1453 Constantinople fell, and the Turk was permanently established in the east of Europe. As a counterstroke, in the west, not forty years later, the Moorish dominion in Spain was wiped out, Spain emerging as a united Christian kingdom. Before the end of the century Columbus and Gama had discovered America, and virtually rediscovered India. Across the ocean a new, almost unlimited field for expansion, for enterprise, for rivalry had

End of the Middle Ages

TIME-TABLE OF THE WORLD: A.D. 1000 to 1500

Development of Feudalism. The Rise and Decadence of the Papacy. The Crusades. Holy Roman Empire. The Organisation of England, France, and Spain. The Renaissance

A.D.	The Non-Christian World	Christendom	A.D.
1000	Mahmud of Ghazni. Beginning of Mohammedan invasions of India.	Scandinavian power: Canute, King of Norway, Sweden, Denmark, and England. Franconian line of emperors; Burgundy reunited to Empire. Dynasty of Hugh Capet in France.	1000
1050	Power of the Seljuk Turkish Dynasty.	ENGLAND: The Norman conquest, 1066. Norman conquests in Sicily and S. Italy. Power of the Empire under Henry III. Pontificate of Gregory VII. (Hildebrand). Beginning of the struggle between Papacy and Empire (Henry IV.) First Crusade.	1050
1100		Development of Papal power. ENGLAND: Organisation of central government under Henry I. checked under Stephen. Norman kingdom of Sicily. Conrad, first Hohenstaufen emperor. Beginning of Guelphs (Papal) and Ghibellines (Imperial)	1100
1150	Establishment of Mohammedan (Ghori) dynasty at Delhi. Conquests of the Saracens under the Seljuk Saladin. Third Crusade (Cœur-de-Lion).	The Angevin dominion of Henry II., comprising half France. ENGLAND: End of feudal anarchy. Maximum power of Crown. Henry worsted in the struggle with the Church. Chivalry typified in Richard Cœur-de-Lion. Frederick Barbarossa emperor, 1155-1190 City development. Lombard League; and German Free Cities. Advance of Moors in Spain.	1150
1200	Genghis Khan: Tartar conquests in Asia and irruption into Europe. Buddhism obsolescent in India.	Highest power of Papacy, under Innocent III. Francis of Assisi: institution of Mendicant Friars. ENGLAND: Magna Charta; contest of Crown and Barons. Loss of Angevin dominion. FRANCE: Development of central power under Louis VIII. and IX. Institution of the Teutonic knights. Break up of the Eastern Empire. Venice.	1200
1250	Rise of the Ottoman (Othman) Turks. Khublai Khan in Eastern Asia.	Decadence of Imperial power. First Habsburg emperor. End of the Crusading period. ITALY: Rise of Florence. Dante. Giotto. ENGLAND: Establishment of Parliament (Montfort and Edward I.). Organisation of the English nation.	1250
1300	Mameluke Sultans in Egypt.	The Papacy "in captivity" at Avignon. Independence of Scotland. Independence of Switzerland Ottoman Turks establish a footing in Europe. ENGLAND AND FRANCE: Beginning of the 100 Years War.	1300
1350	Rise of the Ming dynasty in China: expulsion of Mongols. Conquests of Timur the Tartar (Tamerlane)	The Jacquerie in France. The Great Schism: period of dual Papacy. ENGLAND: Peasant revolt. Failure of Richard II.'s attempt at absolutism. Wycliffe. Union of Lithuania with Poland	1350
1400	Empires of Mexico and Peru.	End of Great Schism. Hussite wars. English conquest of France, and subsequent expulsion Increasing powers of Parliament. Invention of printing press.	1400
1450	Discovery of America by Christopher Columbus; and of Cape route to India by Vasco da Gama.	Turks capture Constantinople. ENGLAND: Wars of the Roses, 1455-1485. Maritime greatness of PORTUGAL. SPAIN consolidated under Ferdinand and Isabella. FRANCE consolidated under Louis XI. ENGLAND consolidated under Henry VII. Establishment of absolutism under constitutional forms. Revival of learning. Humanists. Savonarola.	1450
1500 A.D.			1500 A.D.

been opened to the European peoples. Already in the realms of intellect old forgotten knowledge had been gradually recovered by the Renascence, the revival of learning and letters; with the intellectual expansion and the invention of the printing press paths to new knowledge were being opened. Men were shaking themselves free from the shackles of authority and tradition. Hence, the sixteenth century witnessed that revolt of half Western Christendom from Rome which we call the Reformation; in its essence, though by no means in its form at the first, a revolt against the interposition of any human authority between the individual man and his Maker. With that revolt political and national divisions were inextricably blended, while the whole was complicated by the new conditions of political supremacy created by the New World.

Growth of Modern Nations

The next two centuries, then, saw France, already a consolidated state, develop into the first military Power under the most absolute monarch in Europe—through a stage of prolonged religious strife which ended by establishing the tolerationist Bourbon, Henry IV., on the throne, through the rule of the two great cardinals, Richelieu and Mazarin, to the intolerant autocracy of Louis XIV., with a close aristocracy no longer in opposition to the crown but allied to it.

In England the development was on different lines. There we find an absolutist movement, the outcome of the Wars of the Roses. But however autocratic the Tudors were, they held by constitutional forms, and preserved the intense loyalty of their people. On Elizabeth's death, a century-old matrimonial alliance placed the sceptres of England and Scotland in a single hand.

Then, on the theory of Divine right, the Crown attempted to override the constitution; the Civil War gave the power neither to king nor parliament, but to a military dictator. On his death the country reverted to a compromise between Crown and Parliament; the Stuarts, again, with the aid of their cousin, the autocrat of France, attempted to recover absolutism. They were driven from the country, and constitutionalism—in effect, government by an oligarchy of landowners—was decisively established. The religious problem had found a decisively Protestant solution at an early stage; but Anglicanism and Puritanism soon grew mutually intolerant; it was only with the Revolution of 1688 that toleration and constitutionalism definitely triumphed together.

Europe in Development

Meanwhile, in the reign of Elizabeth, England had asserted her intellectual eminence by giving birth to Shakespeare and to Bacon; and had decisively displaced Spain from the rulership of the seas. In the next century her colonisation of North America counterbalanced the Spanish dominion in the south and centre of the Western Hemisphere, though it was not unchallenged by France. In the East a great commercial rivalry had grown up between English, Dutch, and French—a rivalry still to be fought out.

Collision of the Dynasties

In the early years of the sixteenth century matrimonial alliances had joined Spain, the Low Countries, and the empire under a single ruler, a Hapsburg of the (Austrian) Imperial house. The vast dominion was extended by the acquisition of the golden territories of the American continent. The Empire passed to one Hapsburg branch, Spain and her dependencies to another. In the empire, a temporary *modus vivendi* was established between Roman Catholics and Protestants; but Spain, the colossus which threatened to dominate Europe, was split by the revolt of the Netherlands, and her power shaken to its foundations by the collision with England. In the sixteenth century, Germany was devastated by the religious Thirty Years War; Austria emerged only as the chief among a number of German states, and Holland won a naval and commercial position second only to that of England. The Ottoman Turks, still aggressive, were still held in check. In India, a Turkish dynasty known as the Moguls (Mughàls, Mongols) extended its sway from Kabul to the mouth of the Ganges, and almost to Cape Comorin.

At the opening of the eighteenth century the aggressive Continental policy of Louis XIV. involved Europe in the "War of the Spanish Succession." The French king's armies were shattered by repeated blows at the hands of Marlborough and Eugene, but he finally obtained his primary object, the recognition of his grandson as king of Spain. The threat of a Hapsburg domination passed into the threat of a

TIME-TABLE OF THE WORLD: A.D. 1500 to 1700

New World Entered, and East Re-entered. The Reformation. Organisation of European Nations under Absolute Monarchies. Constitutional Struggle in England. English Naval Supremacy

A.D.	Asia and Africa	Europe and America	A.D.
1500	The New World bestowed on Spain and Portugal by the Bull of Pope Alexander VI. Portuguese dominion established in the Indian seas by Albuquerque. Conquest of Egypt by Ottoman Turks. Safid dynasty in Persia ("The Sofy").	Raphael, Michael Angelo, and Titian. Rivalry of Henry VIII. (1509-47), Francis I. (1515-47), and Charles V. (1519-56), who combines Spain, Burgundy, and the Empire. Luther challenges the Papacy, 1517-20. The Reformation era opens.	1500
1520	First circumnavigation completed, 1522. Invasion of Hindostan (Northern India) by Baber, the first "Mogul" emperor, 1526.	Turkish advance under Solyman the Magnificent. Gustavus Vasa in Sweden, 1523-60. Spain conquers Mexico (1520) and Peru (1533). REFORMATION: Subjection of Church to Crown (England). Confession of Augsburg: Protestant League. Calvin creates Presbyterianism	1520
1540	Expulsion of Moguls: dynasty of Sher Shah at Delhi, 1540.	RUSSIA: Ivan the Terrible. Order of Jesuits formally established. GERMANY: Contest between Charles V. and Protestant princes of Germany ended by compromise at Peace of Augsburg. ENGLAND: Protestant Revolution (Edward VI.) followed by Romanist reaction (Mary), and final establishment of Protestantism (Elizabeth) in England and Scotland.	1540
1560	François Xavier in Japan. Restoration of Moguls, 1556. Rule of Akbar, 1556-1605. Toleration of Hinduism.	SPAIN: Philip II. and the Inquisition. Council of Trent defines limits of Roman Catholicism. FRANCE: Series of civil wars of religion, 1562-95. Revolt of Netherlands from Spain. Turkish advance checked at Lepanto, 1571. PORTUGAL absorbed by Spain.	1560
1580	Mogul dominion established and organised throughout Northern India.	Gradual success of the Netherlands revolt. English naval supremacy proved by the Armada. Decadence of Spain. [1588. FRANCE: Toleration secured by Henri IV. Spenser, Marlowe, and Shakespeare.	1580
1600	Development of Japanese Feudalism. Reign of Jehan Gir in Hindostan, 1605-27. First English factory at Surat, 1611. First English Embassy to Delhi, 1615.	Galileo and Bacon. Union of English and Scottish Crowns, 1603. Dutch and English commerce in the East Indies. Virginia, first successful British colony in North America, 1606. HOLLAND: Independence established, 1609. GERMANY: Thirty Years' War begins, 1618-48.	1600
1620	Reign of Shah Jehan, 1627-58. The Taj Mahal built. End of the Portuguese power in the East. Extension of the Mogul dominion into the Deccan.	Gustavus Adolphus. FRANCE: Richelieu organises absolutism. ENGLAND: Constitutional struggle between Charles I. and Parliament. The Petition of Right, 1628. PORTUGAL recovers independence.	1620
1640	Rise of the Manchu (Tartar) dynasty in China. Reign of Aurangzib, 1658-1707. Rise of the Mahrattas under Sivaji.	FRANCE: Rule of Mazarin: absolutism established. [protectorate. ENGLAND: Civil War, resulting in military Thirty Years War ended by Peace of Westphalia. Commercial and naval rivalry of English and Dutch. [power. Development of France into the leading military	1640
1660	France enters the field in India. Revival of intolerant Mohammedanism by Aurangzib. Expansion of the Mogul Empire over Southern India.	FRANCE: Louis XIV. initiates policy of aggression ENGLAND: Charles II. undermines supremacy of Parliament. Repression of Nonconformity by Parliament. Louis XIV. attacks Holland, with occasional support from Charles II. ENGLAND: Attack on Romanism.	1660
1680		Aggressive movement of Turkey. [1685. FRANCE: Louis XIV. revokes Edict of Nantes, Constitutionalism established in England by the revolution of 1688. Wars of England and Holland against France.	1680
1700		RUSSIA: Peter the Great.	1700
A.D.		Newton and Leibnitz.	A.D.

Bourbon domination. In the east of Europe a final limit was set to the Ottoman aggression. In Britain, the incorporation of Scotland was completed, formally by the Union of 1707, effectively by the suppression of Jacobitism in 1746.

From 1739 to 1763 Europe was again plunged into wars, with an eight years' interval. The motives of those wars, and of the combinations of states on either side, were complicated; the results were simple. Prussia, under Frederick the Great, emerged as a first-class Power; France lost her North American Colonies to Great Britain; the British East India Company defeated the attempt of the French to establish a paramount influence with the native princes, the Mogul Empire having broken up into a congeries of practically independent satrapies; and the British themselves became established as a territorial Power by the conquest of Bengal. Russia also, organised at the beginning of the century by Peter the Great, had taken her place definitely among the great Powers.

Settling Down of the Powers

During the next twenty years (1763–1783) Poland was absorbed by her neighbours. The British Empire was sundered by the revolt of the older American Colonies, which were established as the United States of America; while Canada remained loyal. By this time the whole of Europe was practically governed by absolute monarchies; but a cataclysm was at hand. France became the scene of a tremendous revolution. Crown and aristocracy were toppled into the abyss.

France proclaimed herself the liberator of the peoples; the monarchs of Europe combined to suppress the proletariat. During the last decade of the century one revolutionary constitution after another was set up in Paris, while the revolutionary armies shattered monarchical armies, and turned the "liberated" peoples into subject dependencies of the Republic. On the seas, however, Britain successfully asserted her supremacy. Of the commanders of the Republic, the most brilliant was the Corsican Bonaparte. He dreamed of making Egypt the basis for achieving an Asiatic empire, and thence overwhelming Europe; but the dream was shattered when he found himself isolated by Nelson's destruction of the French fleet at Aboukir in the Battle of the Nile. Returning to Paris, he transformed the republic into an empire; he set up his brothers or his generals as rulers over half the kingdoms in Europe; he dictated terms to every government except Britain. Britain annihilated his fleets, and fought and beat his generals in the Spanish Peninsula. He conquered the kings, but the nations rose against him, and overthrew him; his last effort was crushed at Waterloo.

Napoleon and the Revolution

Absolutism was reinstated, but the proletariats had learnt to demand freedom Steam-power and steam-traction so changed the conditions of production as to revolutionise the relations between labour and capital, and between the landed and the manufacturing interests. In Great Britain political power passed from the landowners to the manufacturers with the great Reform Bill of 1832, and from the wealthy to the labouring classes with the Franchise Bills of 1867 and 1884. Every monarchy has been compelled to submit to limitations of its own powers more or less copied from Britian.

Britain herself, not untaught by the breach with America, has learned to establish responsible government in her Colonies, making them virtually free states; and among those states the idea of federation has taken root and is bearing fruit. In India, challenged by one native race after another, she has extended her sway over the whole peninsula, and has abolished the anomaly of governing her great depen dency through a trading company. In the West her kinsmen have raised the United States into a mighty nation.

The World as it is

In Europe France has passed through monarchy and republic and second empire into a stable republic; Italy has revolted against foreign rulers, and become a united nation; the small peoples of the Balkan Peninsula have now achieved by arms their liberty from Turkish rule. Prussia has won the hegemony of the German states, and established a new German Empire. Russia, the bogey of the West, and of Britain in particular, has shown her weakness in collision with the sudden development of Japan.

Finally, the Dark Continent has been explored and partitioned: in the south, after a sharp conflict, British and Dutch are on the way to become a united people; in the north, Egypt has been reorganised under British administration. We end, as we began, with the land of the Pyramids.

ARTHUR D. INNES.

TIME-TABLE OF THE WORLD: A.D. 1700 to 1914

Struggle for Colonial Supremacy. French Revolution and Napoleonic Wars. Growth of Democracy and Consolidation of European States. Colonial Extension of Responsible Government

A.D.	Asia, Africa, and Australasia	Europe and America	A.D.
1700		War of Spanish Succession, 1702-13. Bourbons established in Spain. Career of Charles XII. of Sweden, 1697-1718. GREAT BRITAIN: Incorporating union of England and Scotland, 1707 [Eugene, 1717. Turkish advance decisively stopped by Alliance of France and Great Britain.	1700
1720		Anglo-Spanish War, combined with War of the Austrian Succession, 1739-48. Development of Prussian military power under Frederick William.	1720
1740	Struggle between British and French in Southern India, 1746-61. Clive conquers Bengal; beginning of British territorial power in India, 1757.	GREAT BRITAIN: End of Jacobitism (the Forty-five) consolidates the union. Seven Years' War (1756-63): Prussia and Great Britain against France, Austria, and Russia. Achievements of Frederick. Overthrow of France at sea, and in Canada and India.	1740
1760	British dominion receives Mogul's sanction. Haidar Ali in Mysore. Governor-Generalship of Warren Hastings (1774-85), establishes the British power.	Treaties of Paris and Hubertsburg exclude France from America and India, and confirm the position of Prussia. Partition of Poland. GREAT BRITAIN: Quarrel with Colonies; leading to War of American Independence, 1775-83.	1760
1780	Dual control in India by East India Company and Parliamentary Board of Control set up by Pitt's India Act. Administration of British India systematised. Overthrow of Mysore, and institution of subsidiary alliances by Lord Wellesley.	British recovery of naval predominance. UNITED STATES: Independence established FRANCE: French Revoluton, 1789. [1783. War between European Coalitions and French Republic, 1792-1802. Rise of Bonaparte. Triumphs of French Army and British Navy. GREAT BRITAIN: Legislative Union with [Ireland.	1780
1800	Overthrow of Mahratta power by Lord Hastings (1819): extensive annexations. Acquisition of Cape Colony from Holland by Great Britain. Gradual planting of Australasian Colonies.	War renewed (1803) between European Coalitions and Emperor Napoleon (1804). Trafalgar and Austerlitz, 1805. Peninsula War, 1808-13. Moscow Campaign, 1812. Waterloo Campaign, 1815 [the Holy alliance. European reconstruction. Absolutist reaction: Kant and Goethe.	1800
1820	Aggressive Eastward movement of Persia checked at Herat. First Afghan Wars, 1839-42. CHINA: First collision with Europe.	Independence of South and Central American Greek War of Independence, 1822-29. [States FRANCE: Constitutional Monarchy under Louis Philippe, 1830-48. GREAT BRITAIN: Parliamentary Reform and manufacturing development. Railways.	1820
1840	Sikh Wars, 1845-49. Annexations under Dalhousie. Indian Mutiny, 1857. Transfer of Indian Government to British Crown, 1858. JAPAN: Admission of foreign traders.	Charles Darwin. Revolutionary movements in Europe. FRANCE: Republic (1849) passing to Empire of Napoleon III. (1852). Crimean War, 1854-56. [British Colonies. Establishment of responsible goverment in	1840
1860	JAPAN: Revived power of the Mikado. Advance of Russia in Central Asia towards India. Second Afghan War, 1878-80.	American Civil War, 1861-65 Abolition of Slavery. Independence of United Italy under Victor Emmanuel. [States 1866. Prussia acquires leadership of German Franco-Prussian War, 1870-71. New German Empire, and new French Republic. Russo-Turkish War, 1877-78.	1860
1880	Mahdism in the Eastern Sudan; ended at Omdurman in 1898. British control established. Partition of Africa into "Spheres of Influence." War between China and Japan. Annexation of Philippines by United States. South African War (1899-1902) and incorporation of Dutch States into British Empire. Federation of Australian Colonies, 1901.	British control established in Egypt. Repeated disturbances in the Balkan States established by the Russo-Turkish War First Peace Conference of European powers at the Hague, 1899. Norway separates from Sweden and elects King Haakon, 1905	1880
1910	War between Russia and Japan, 1904-5. CHINA: Revolution: Manchu dynasty displaced by Republic, 1912. [1912.	Second Peace Conference at the Hague, 1907. Allied Balkan States defeat Turkey, 1912. Creation of Albania as independent state, 1914.	1910
A.D.	Tripoli annexed by Italy from Ottoman Empire,	Revolution in Mexico, 1913-14.	A.D.

A TIME-TABLE OF THE NATIONS OF THE WORLD

FROM THE BEGINNING OF HISTORY TO THE PRESENT DAY

Showing at a glance the fate of all nations, their rise, their sway, their decline, and their successors

On this double-page are shown the empires of the ancient world to the rise of Rome, and on the succeeding double-page the ruling powers from Rome until the present day. The chronology is in divisions of a hundred years, except the first four, which, for convenience of space, are shown in longer periods

NOTABLE EVENTS

The earliest civilisation known is that of Egypt, traces of which have been found dating back to 7,000 or 8,000 B.C. Equally early civilisations were probably established in the Euphrates Valley.

In the fifth millennium Khufu built the Great Pyramids; in the fourth a Semitic migration, spreading westward from Asia, peopled Babylonia, Assyria, Canaan, and Phœnicia afresh, establishing new nations and kingdoms.

The third millennium saw the Aryan invasion of India; the beginning of Chinese history; and Aryan and Semitic waves of migration towards Europe.

Egypt was conquered by the Hyksos, a Semitic nomadic race.

Hittite Empire established in Syria.

During the next three hundred years, of which the history is obscure, the dynasty of the Ramessides was established in Egypt, which waged wars with the Hittite Empire. Rameses II. is popularly identified with the Pharaoh of the Exodus, an event which is also identified with the expulsion of the Hyksos. The supremacy in the Mesopotamian regions alternates between Assyrian and Babylonian dynasties.

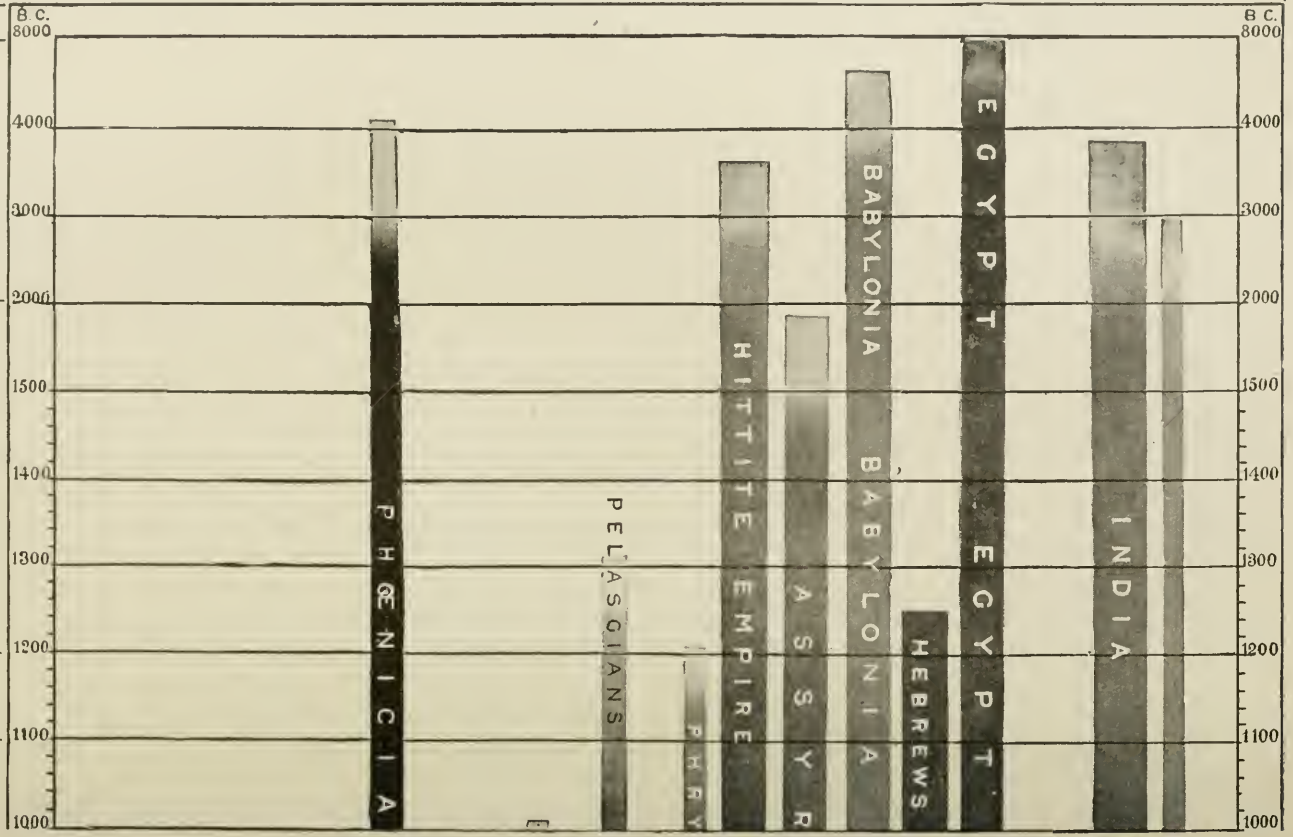
Rise of a Hebrew nation.

Age of Phœnician prosperity; commercial importance of Sidon and Tyre.

Ionic and Doric migrations.

Predominance of Phrygia among kingdoms of Asia Minor.

1048 B.C. David captures Jerusalem and becomes King over all Israel.



975 B.C. Division of the Hebrew kingdom into Judah and Israel after the death of Solomon.
Growth of the Hellenic States.
The age of Homer.

850 B.C. Foundation of Carthage.
Beginnings of the Latin and Etruscan peoples.

Assyrian conquest of Babylon, Syria, and Israel.
753 B.C. The foundation of Rome.
Rapid spread of the Greek Colonies.

Beginnings of the Macedonian kingdom.
Rise of Media.
Beginnings of Japanese history.
Decline of Assyria, fall of Nineveh, and establishment of new Babylonian Empire.

Cyrus, King of Persia, conquers Media, establishes his empire over Lydia, Assyria, and Babylonia (538 B.C.). His son Cambyses conquers Egypt, 525 B.C.

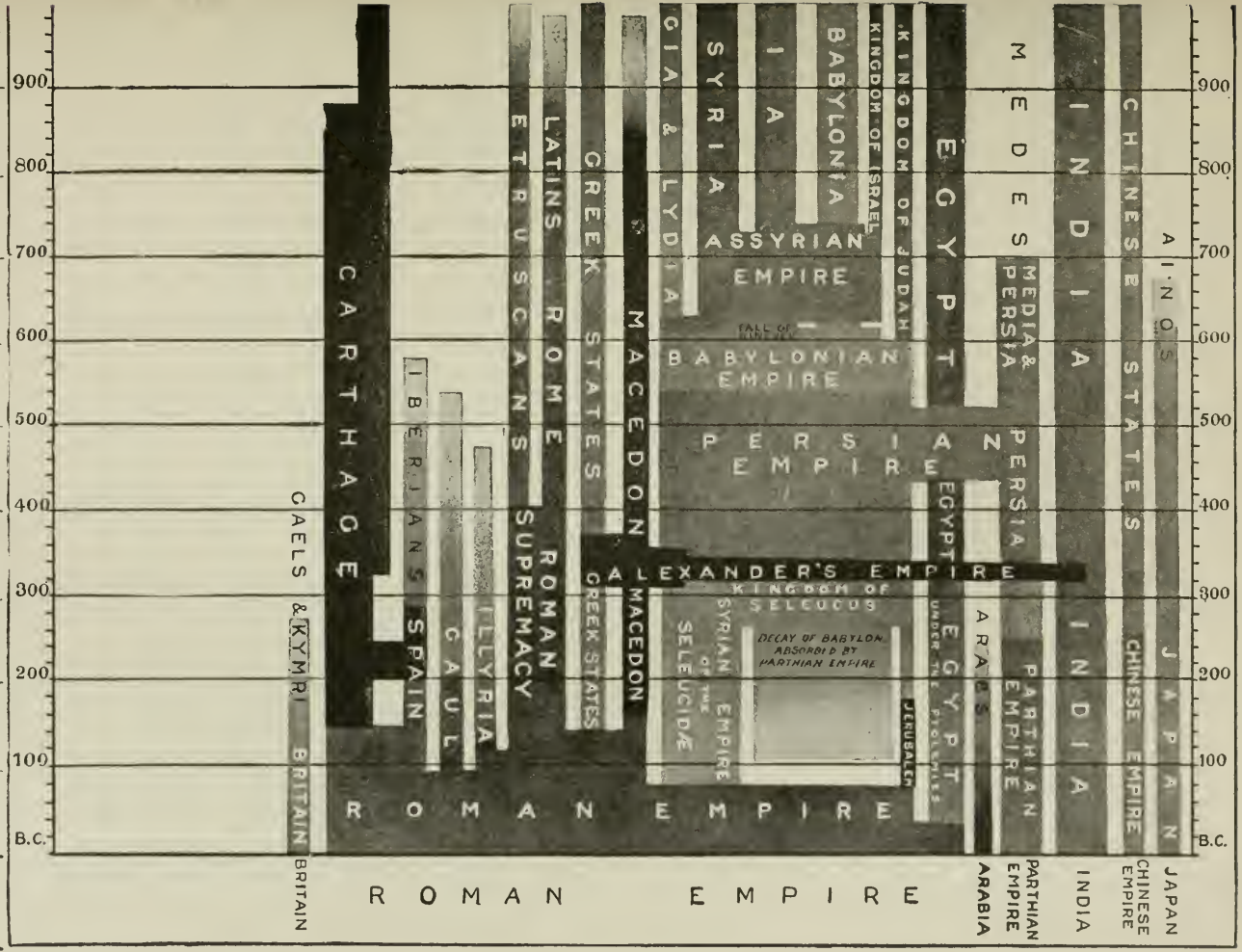
The Greek States revolt against Persia and are triumphant.
Egypt regains independence.
Steady growth of Roman ascendancy in Italy.
Struggle between Athens and Sparta.

Conquests of Alexander the Great (334-322 B.C.). He conquers Persia, masters Egypt, and invades India. At his death his empire is divided; Egypt falls under the Ptolemies, Syria under the Seleucidæ.

Babylon absorbed by Parthian Empire.
Carthage dominates Spain.
Wars between Rome and Carthage.
Overthrow of Carthage (202 B.C.)

Judea attains independence under the Maccabees.
Growing power of Rome. Macedon a Roman province; Egypt and Syria made Roman protectorates. The Greek States are absorbed into province of Macedon.

Cæsar conquers Gaul and lands in Britain.
Egypt becomes a Roman province.
Augustus Cæsar. Establishment of the Roman Empire.



A TIME-TABLE OF THE NATIONS OF THE WORLD

continued from the preceding pages

FROM THE BEGINNING OF THE CHRISTIAN ERA TO THE PRESENT DAY

NOTABLE EVENTS

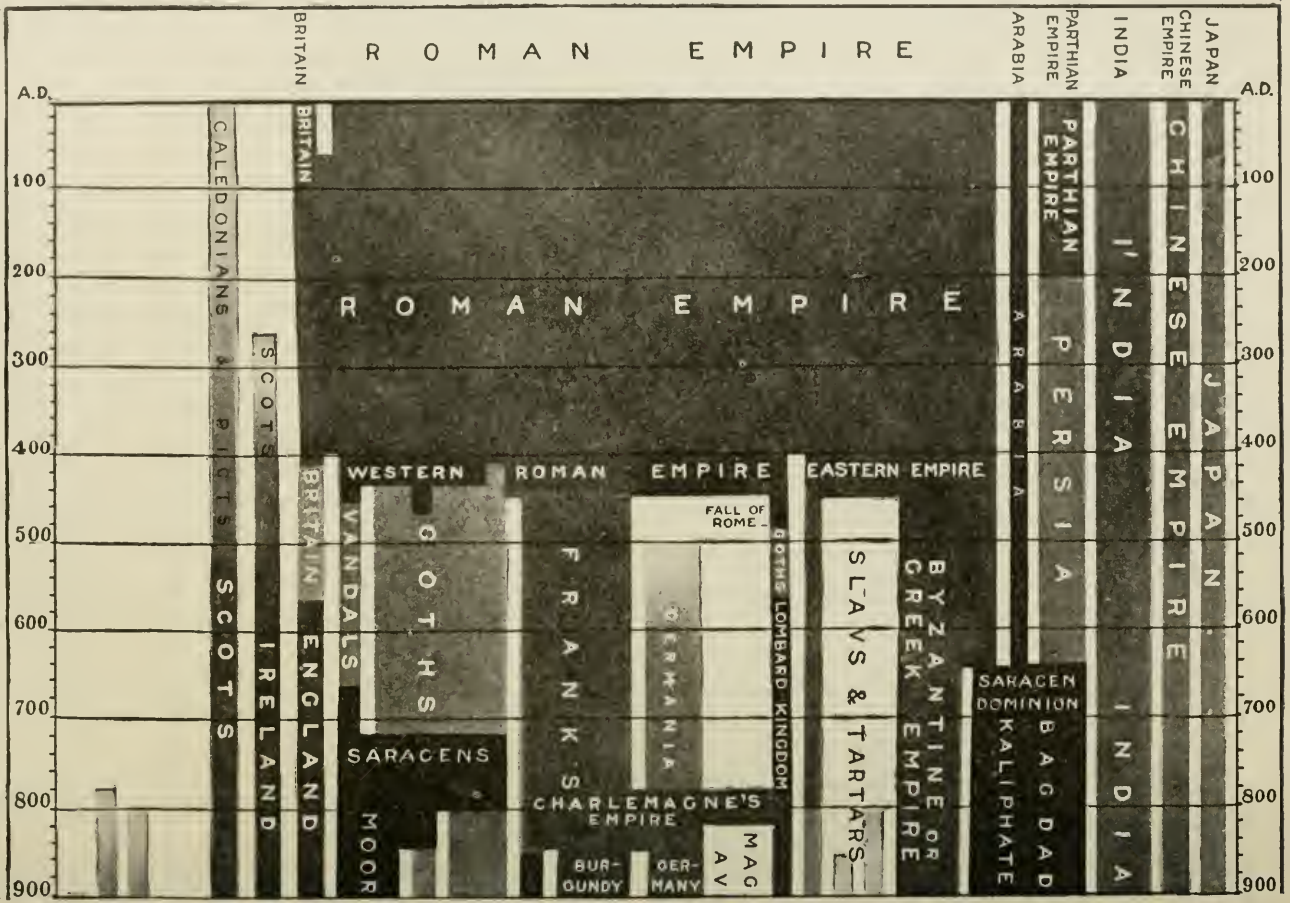
For the first four centuries of the Christian era the Roman Empire absorbed the "known" world, bounded in Europe by the ocean the Rhine, and the Danube, and in Asia by the Euphrates, and including the Mediterranean districts of Africa. Germanic tribes bore with ever-increasing pressure upon her European borders, and the Parthians defied her in the East. At the close of the third century the centre of political gravity was passing from Rome itself to Byzantium, preparing for the session of the Empire into Eastern and Western, which was practically at the close of the fourth century, when it was becoming increasingly clear that Rome could not stand against the Barbarian invaders, notably the Goths under Alaric.

In the fifth century the Empire, long weakened by corruption and the tyranny of the army, was overwhelmed by the Barbarians. Vandals, Western Goths, and Suevi poured into Spain; Franks and Alemanni spread over Gaul; Ostro-Goths and Lombards settled in North Italy; Huns and Avars attacked Thrace.

Britain was invaded by Saxons, Jutes, and Angles.

The seventh and eighth centuries were marked by the rapid rise of Mohammedanism in Arabia; the conquests of the Saracens in Egypt, Africa, and West Asia; the establishment of the Caliphate at Bagdad; and their invasion of Spain. Here they were checked by the Franks.

Charlemagne, son of Pippin, King of the Franks in Germany and Gaul, was crowned in 768, conquered Lombardy in 774, calling himself "King of the Franks and Lombards and Patrician of the Romans." His empire was divided after his death; from it emerged modern France and Germany. His coronation by the Pope at Rome (A.D. 800) originated the idea of the Holy Roman Empire.



Disintegration of the Empire of the Caliphs, and rise in Asia Minor of the Seljuk Turks, making war against the Byzantine Empire and the Crusaders, and conquering Egypt.

India is invaded by Mohammedan Afghan rulers, who eventually establish a dynasty at Delhi.

The Kingdoms of Hungary, Bohemia, and Poland, converted to Christianity in the tenth century, come into increasing prominence.

The Kings of Castile, Navarre, Aragon, and Portugal at war against the Moors, who (A.D. 1248) are restricted to Granada.

The Mamelukes (Slave kings) conquer Egypt (1252).

Switzerland attains independence.

Failure of England to absorb Scotland, or to conquer France. The Hundred Years War.

The Turks capture Constantinople (1453).

The Netherlands (Burgundy) united to the House of Hapsburg (1477).

Spain united; overthrow of the Moorish dominion.

Bohemia and Hungary united to Austria. Spain and Portugal take possession of the New World. Mogul Empire established in Hindostan. The Reformation leads to revolt of the Netherlands from Spain; Spain absorbs Portugal.

Union of English and Scottish crowns (1603); followed by legislative union (1707). Disruption of Germany in the Thirty Years War. Establishment of English Colonies in America. Portugal recovers independence.

Spain becomes a Bourbon Power. Rise of Russia and Prussia. Partition of Poland between Russia, Prussia and Austria. Further disintegration of German Empire. British dominion in India and North America. Independence of United States.

France predominant under Napoleon. Rise of South American States. Establishment of British India. Italy independent. Egypt, Greece, and Balkan States freed from Turkey. Foundation of German Empire.

Independence of Norway (1905).

CONTEMPORARY FIGURES IN HISTORY

TIME B.C.	India	China	Persia	Greece	Rome	Judah	Egypt	Macedon	TIME B.C.
500	Buddha	Confucius	Darius Xerxes	Æschylus Themistocles	Tarquin the Proud	Haggai Zechariah			500
450			Artaxerxes	Socrates Plato Pericles Herodotus Thucydides Sophocles		Nehemiah Ezra			450
400				Euripides					400
350				Aristotle Demosthenes				Philip Alexander	350
200					Hannibal	Judas Macca-[bæus			200
50					Julius Cæsar Cicero		Cleopatra		50
Jesus Christ					Augustus Tiberius Horace Virgil, Livy	John the [Baptist			Jesus Christ

A.D.	Britain	France	Germany	Switzerland	Rome, Italy	Spain	Netherlands	Africa & East	A.D.
50	Boadicea				Seneca St. Paul			Josephus	50
300					Constantine			Athanasius	300
400					Alaric			Augustine	400
600		Chas. Martel						Mahomet	600
700	Bede							[Raschid	700
800	Alfred	Charlemagne						Haroun-al-	800
1100						The Cid		Omar Khay-	1100
1200					St. Francis			yam (Persia)	1200
1300	Chaucer			William Tell	Aquinas Dante			Tamerlane	1300
1350	Wycliffe	Froissart		Arnold von Winkelried	Petrarch Boccaccio			Hafiz (Persia)	1350
1450	Caxton				Da Vinci				1450
1500	Knox Latimer	Rabelais	Luther Copernicus	Calvin	Columbus Savonarola Machiavelli	Ignatius Loyola St. Theresa Ferdnd. & Isabella Cortez	Erasmus		1500
								Russia	
1550	Philip Sidney Spenser	Montaigne Scaliger			Cellini Tasso	Alva	William the [Silent	Ivan the [Terrible	1550
1600	Shakespeare Raleigh Bacon Jonson	Corneille Richelieu Descartes	Kepler		Galileo	Cervantes **Scandinavia** Gustavus Adol-phus	Rubens Van Dyck Grotius		1600
1650	Cromwell Milton Bunyan Dryden Locke Hobbes	Pascal Racine Molière Fénélon Rochefoucauld Louis XIV.	Leibnitz				Spinoza	Peter the Gt. [& Catherine	1650
1700	Swift Steele Addison Walpole		Handel			Holberg			1700
							America		
1750	Chatham Burke Pitt and Fox Wesley Burns Goldsmith Sheridan Dr. Johnson Coleridge Flaxman Reynolds Gainsboro'gh Nelson Wellington	Voltaire Lavoisier Napoleon	Fredk the Gt Goethe Schiller Haydn Mozart Kant	Rousseau Gessner Pestalozzi			Franklin Washington		1750
1800	Faraday Scott Byron Keats Shelley Wordsworth Lamb		Hegel Beethoven			Tegner Thorwaldsen			1800
1825	Gladstone Macaulay Disraeli Landseer Mill Livingstone Ruskin Dickens Carlyle Thackeray Browning Tennyson Darwin Huxley	Balzac Dumas Victor Hugo Georges Sand Lesseps Napoleon 3 Gambetta	Wagner Heine Bismarck Moltke Bunsen William I.		Garibaldi Mazzini Cavour Victor Em-manuel	Hans Andersen Runeberg Wergeland Welhaven Ibsen Bjornson	Irving Emerson Longfellow Whittier Lowell Holmes Lincoln	Turgenieff Tolstoy **Hungary** Kossuth	1825
1900	Spencer								1900

MAKING OF THE EARTH



AND THE COMING OF MAN

THE BEGINNING OF THE EARTH

BY PROFESSOR SOLLAS

THE origin of our planet is a problem which has appealed to the intellect of thoughtful men from the most remote times, and the earliest recorded speculations concerning it—those of the Mosaic cosmogony—possess a peculiar interest, since they embody the views of the ancient Chaldeans, who were not only systematic observers of the heavens, but made practical use of their results.

Beginning of a Famous Theory

The Mosaic cosmogony is not unworthy of the great people among whom it took its rise; it recognises the fact that the earth had a history antecedent to the advent of man, and its account of the order of events in this history is not only remarkable as a feat of *a priori* reasoning, but accords in some respects with the results achieved after much labour by modern science.

It was not until the middle of the eighteenth century that the reign of evolution began, and attempts were made to trace the history of a planetary system from its source in a primeval nebula on purely mechanical grounds. Swedenborg (1735) was the pioneer in this direction, then came Thomas Wright (1750) of Durham, whose work furnished inspiration to Emanuel Kant (1755), and led him to construct a consistent scheme of the Universe. The last of this group of cosmic philosophers is Laplace (1796), whose admirable description of the evolution of the solar system was arrived at independently, and without knowledge of the previous work of Kant.

Laplace assumed as his starting-point the existence of a nebula formed of incandescent gas, and extending beyond the limits of the outermost planet of our system. It was in rotation about a central axis, and possessed in consequence a disc-like or lenticular form. Radiating its heat away in all directions through surrounding space, it grew continually colder, and in cooling diminished in bulk. As a consequence of this contraction its rate of rotation increased, till at length the centrifugal force of the outermost part became so great that this could no longer continue to follow the contracting mass within, and thus remained behind as a great rotating ring. The continued contraction of the internal mass, and the resulting increase in the velocity of rotation, again brought about the same condition of things, and a fresh ring was left behind.

This process was repeated time after time, till as many rings were formed as there are planets in the solar system; the central mass which survived within the innermost ring condensed to form the sun. The rings were highly unstable—that is to say, a slight disturbing force was sufficient to destroy their continuity; they broke across and rolled up into great nebulous globes, which revolved round the sun in the same direction as the original nebula, and rotated on their axes in the same direction as that in which they revolved. Most of them repeated the behaviour of the original nebulæ, leaving behind rings as they contracted, and these rings either rolled up to form moons or satellites, or, in the solitary instance of Saturn's rings, retained their annular form. The rings are now known to consist of a multitude of solid bodies, as proved by Clerk-Maxwell.

Cooling of the Nebula

By this hypothesis, so beautiful in its simplicity, an explanation was afforded embracing all the more important facts of our system; the revolution of all the planets in nearly circular orbits and in the same direction as that in which the sun rotates, and the revolution of their satellites, also in circular orbits and in the same direction as their primaries; the comparatively high temperature and consequent low density of the larger planets and the sun, as well as a variety of other phenomena, all seem to follow naturally from it. The fundamental assumption seems to be in harmony with a number of known facts. Thus in the case of our own planet the volcanoes distributed around the margins of the oceans, and the hot springs scattered irregularly over the whole terrestrial surface, suggest that great stores of heat exist beneath our feet, a presumption which finds confirmation in the fact that whenever we descend towards the interior of the earth, as in deep mines or wells, the temperature continues steadily to rise after we have passed a depth below which seasonal and diurnal changes of temperature cease to be felt, the rise being in some cases as much as 3 deg. for 100 ft., in others only 1 deg. for the same distance, but on the average 1 deg. for 60 ft. or 70 ft. If this increase of temperature continues down to great depths, and there seems to be no reason why it should not, then a point will be reached, say, at thirty or forty miles down, where the interior will attain a white heat.

The Temperature of the Earth

Thus the earth might be regarded as a white hot body surrounded with a film of rock growing continually cooler towards the surface. But such a hot body suspended in space must be cooling, just as all bodies which are hotter than their surroundings. It is cooler to-day than it was yesterday, or—what is the same thing—it was hotter yesterday than it is to-day, and so of all previous yesterdays. And thus as we travel backwards in time we perceive that the earth will be growing hotter, the level of white heat will be mounting upwards towards the surface, and will at last reach it, so that the earth, instead of being, as it now is, a dark body shining only with the reflected light of the sun, will be self-luminous, a tiny star of a magnitude so diminutive as to have awakened resentment on the part of some terrestrial inhabitants, who have regarded it as disproportionate to their dignity. But we cannot arrest imagination at this stage; our thought still extends its retrospective glance into the abyss of past time, and we perceive the earth still growing hotter, till its temperature transcends those limits at which it can exist in the solid state. It becomes molten—nay, more, it becomes gaseous, and thus resumes the nebular state from which it sprang. Precisely the same argument applies to the sun; our mighty luminary is also a cooling body, and if we could restore to it the heat which it has lost in the course of past æons it would resume a completely gaseous state. Modified in one way or another, this chain of reasoning seemed irrefragable in those happy days which preceded the discovery of radium.

The Earth as a Star

The question may be considered from another point of view. On searching the heavens we find that many of the stages which are assumed in Laplace's hypothesis are still represented by actual existences. There are, to begin with, those immense diffused nebulæ, almost incapable of definition, which are proved, on spectroscopic examination, to emit that kind of light which is characteristic of glowing gas; from these we pass to others which are resolvable by the telescope into a central and more condensed nucleus, with two mighty nebulous arms whirled round in a spiral, and bearing more condensed masses in their midst; even ring nebulæ are known to exist; and, finally, there are nebulous halos which surround some of the stars. Then we come to the stars themselves, which are suns of various degrees of magnitude, some immensely larger than our own luminary, and these are evidently in various stages of existence. Some are blue, and afford evidence of a higher temperature than that of our sun; others are yellow, and make a nearer approach to the solar temperature; while, again, others are red, and certainly colder.

Universe still in Evolution

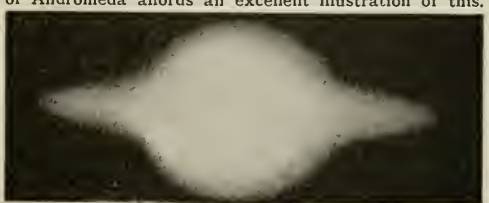
These, in conjunction with other considerations, lead to the conviction that the universe is in a state of evolution, and that the solar system at one time existed in a nebular state. But whether Laplace's description of the series of events through which the original nebula passed is the true one or not is a very different matter; it presents so many difficulties that scarcely any student now supports it.



In the beginning, it is supposed that the earth was part of a vast nebula of gaseous matter and meteorites, resembling the nebula of Argo, illustrated above.



Later, as the cooling process advanced, the nebula assumed a rotatory movement in the form of a spiral. The nebula of Andromeda affords an excellent illustration of this.



Another stage would be as in the annular nebula of Aquaris, the mass forming into a ball with outer ring attached.



Or, like the nebula of Cygni, with the central sun well formed and the gaseous ring far removed, the earth would begin to shape, and the ring would roll up to form the moon.



Jupiter, which is in a molten state, wreathed in thick vapour, with the "great red spot" indicating the beginning of the solidifying process, shows what the earth was like before it assumed its present solid condition.



This shows the earth and the moon in their relative sizes; while the diagram below it illustrates the distance apart.

A fundamental difficulty is the extreme tenuity of the gas which is assumed to have formed the planetary rings. A second difficulty, which has been emphasised by Professors Chamberlin and Moulton, is to be found in the comparatively small amount of rotational energy which the system at present possesses, for this is less than $\frac{1}{200}$ of that which, on the most favourable assumption, must have been contained within the original nebula. Less fundamental, but equally fatal, is the fact that one of the satellites of Saturn revolves round its primary in a direction opposed to that of the rotation of the planet itself. [Recently Mr. Stratton, following out a suggestion of Professor W. H. Pickering, has shown that this is quite consistent, and, indeed, is a natural deduction from Laplace's hypothesis.] Hence for these and other reasons we are reluctantly compelled to abandon an hypothesis which for over a century has exercised an influence on our conception of the cosmos not less profound, penetrating, and far-reaching than that of the famous Darwinian doctrine of natural selection, now on its trial.

Laplace's Theory Abandoned

At present, unanimity of opinion, even on questions of the most primary kind, is far to seek. Philosophers are not even agreed as to the constitution of the nebulæ. It is questioned whether even those least resolvable and most diffused forms which give bright line spectra really consist of masses of incandescent gas. Many observers, among them Sir Norman Lockyer, now maintain that they are formed of swarms of meteorites, which, moving with prodigious velocity, meet in frequent collision, and by their impact evolve sufficient heat to become self-luminous. Others, again, like the distinguished investigator Arrhenius, while admitting the gaseous nature of these nebulæ, deny that they are incandescent, and assert that their temperature is not much above that of surrounding space. Their exterior parts consist of the lighter gases in a highly rarefied state, and minute particles of negative electricity, which are always careering through space, on penetrating these gases produce a luminous discharge. A nebula composed of swarms of meteorites would, as Sir George Darwin has shown, behave very much in the same way as one composed of gas, and if in rotation would rotate as a solid mass. The meteorites would stand in the same relation to the nebula as molecules to a gas, and thus the question of the constitution of the nebula, although of great interest in itself, becomes of subsidiary importance in tracing its subsequent history.

What are the Nebulæ?

One of the latest attempts to frame a nebular hypothesis is that of Professor J. H. Jeans. His reasoning is of a highly mathematical character, and his conclusions are expressed in the most general terms. Starting with a spherical nebula of gas or meteorites endowed with a small amount of rotation, he shows that as it cools or loses energy the temperature of the interior will not fall continuously in precise correspondence with the cooling of the outer parts, and this "lag" of the interior temperature will bring about a tendency to instability. The contraction of the nebula due to cooling will increase the velocity of rotation, and this again will tend to instability. As a result of the instability so produced the nebula will change its form, and become more or less pear-shaped. The narrow end of the pear will then separate from the body and assume an independent existence as a primitive planet. This process will recur again and again till the nebula is resolved into a sun with its attendant planets. The planets, existing at first as gaseous masses or quasi-gaseous masses, will be liable to the same kind of transformation, and may thus bud off moons or satellites.

Shaping of the Planets

If the nebula were not in rapid rotation, a slight disturbing cause, acting at the critical moment when a planet was being ejected, might determine the inclination of the planet's orbit, which might thus be very oblique to the equatorial plane of the nebula. Thus the hypothesis is not open to one of the objections which have been urged against that of Laplace—namely, that the orbits of some of the planets in the solar system are inclined at a large angle with the plane of the sun's equator.

Jeans mentions two disturbing causes in particular which might easily arise—one the penetration of the nebula by a wandering meteorite, which might precipitate an event already on the verge



This illustrates Laplace's theory, which conceived of a vast nebula filling the whole space of the solar system and rotating around a central axis. The outer and thinner part had much greater movement than the denser central mass, finally being thrown off as a ring, which in turn rolled up into a ball, still following the same course as the ring had followed. Thus the earth broke off from the sun and the moon from the earth. The theory is, however, no longer credited by scientists.



The pear-shaped nebula is the theory of a young English mathematician, Professor J. H. Jeans. Starting with a spherical nebula, he argues that in cooling it will assume the form illustrated above, and that the smaller part will separate and form a satellite rotating independently but within a distance influenced by the parent mass.



The spiral nebula in Canes Venatici, a revolving mass of gas or meteorites, supplies, according to the nebular hypothesis of Messrs. Chamberlin and Moulton, an excellent example of how the earth and moon were formed. We may reasonably imagine the smaller spiral to represent the moon in the act of being thrown off by the earth.

THREE FAMOUS THEORIES OF THE BEGINNING OF THE EARTH

of happening, and simultaneously determine both the birth of a planet and the obliquity of its orbit; the second, the presence of some distant mass, such as a star, which, by raising a quasi-tide in the nebula, would give the final touch required to overturn its equilibrium. The influence of a distant body, such as a passing star, has been invoked by Moulton in another version of the nebular hypothesis. In conjunction with Chamberlin, he calls special attention to the spiral nebulæ, which are by far the commonest kind, as presenting the closest approach to the conditions which obtain when planets are actually in course of formation. Chamberlin and Moulton enter on a detailed account of the manner in which they suppose the planets to have grown by the gradual accretion of meteoric masses as these encountered each other while moving in various elliptical orbits.

Heavenly Bodies in Collision

At present it would seem impossible to speak with certainty as to the precise history of the solar system. Meanwhile, we may console ourselves with the closing words of Professor Jeans' paper, to the effect that "no difficulty need be experienced in referring existing planetary systems to a nebulous or meteoric origin on the ground that the configurations of these systems are not such as could have originated out of a rotating mass of liquid."

An investigation by Sir George Darwin, which has furnished inspiration to such hypotheses as that of Jeans, brings us nearer the immediate subject of this essay, since it treats of one of the last acts in the great drama of planetary existence, and attempts to derive the earth and moon from a common origin in a single rotating sphere.

Why the Day is Growing Longer

It is well known that, owing to the frictional effects produced by the tides, the earth is being gradually slowed down as it rotates upon its axis. Thus the day is constantly getting longer, so that in a few millions of years it will have increased in length from twenty-four to twenty-five hours. On the other hand, in past time it must have been shorter than at present: a few millions of years ago it was only twenty-three hours in length, and many millions of years earlier it was still less, only some five hours or so. At that time the earth was hotter than it is now, less rigid, more yielding, and, owing to its rapid rotation, less stable. The action on the moon of the tides produced in it by the earth is similar, and the rotation of the moon has been so far diminished by them that its day has become as long as the month—*i.e.*, our satellite only turns once round on its axis in the time that it takes to revolve once round the earth; it is for this reason that our satellite keeps always the same face turned towards us.

The retardation of the earth in its rotation has, however, a very remarkable effect on the revolution of the moon; it involves—by the principle of the conservation of moment of momentum—a corresponding acceleration of the moon in its orbit, and, as a consequence of this, an enlargement of this orbit—that is, the moon is pushed away from us, as it were, and thus becomes more remote. But if so, the moon must have been nearer to us in times past. It is possible to trace the approach of the moon to the earth as we go backwards in time till the distance between them was only two and a half terrestrial radii instead of the sixty radii which now separate them. Mathematics do not take us farther back than this. But it is difficult to resist the suggestion that in the immediately preceding stage of development the earth and moon formed together a single sphere.

The Moon Was Part of Our Sphere

If we may adopt this view, then we must regard the sphere as subject to the tidal influence of the sun. It was much hotter, and therefore more yielding, than the present earth; it was also rotating much faster, probably once in about four or five hours. It would be contracting as a consequence of cooling, and the contraction would lead to instability (gravitational instability); its rapid rotation would also tend toward instability (rotational instability). It is difficult to say which of these two, gravitational or rotational instability, would be the most effective; but the combined result would be to give a pear-shaped form to the rotating mass, and eventually to deepen the constriction between the narrow and the broad end, till the smaller protuberance became completely dissevered from the larger mass, and so entered on an independent existence as the moon. This

final step in the process would probably depend on the tide-producing power of the sun ; the larger mass remained behind as the earth, whose individual existence may be said to date from this event.

How the Moon Broke Away

The young earth would be subject to very much the same conditions after as before the ejection of the moon, and might very possibly again pass into a pear-shaped form, but without proceeding further through those subsequent changes, which would have led to the formation of another satellite ; and while possessing some such form as this, she might very well have consolidated. With advancing years she would lose, as we have seen, the activity of her youth, the drag of the tides would cause her to spin ever more slowly on her axis, till the day would become prolonged to the twenty-four hours of the present. With this diminished rate of spin, the earth, if free to yield, would lose the pear - shaped form and become an oblate spheroid, and the oblateness of this spheroid would continually diminish, so that it would continually approach towards a true sphere. Suppose, however, that the earth as it cooled lost its power of readily yielding—and at present it is more rigid than a globe of steel—then it would pass from form to form, not by a flowing movement, but by a series of ruptures, and its form at any moment might be a little in arrear of that which it would have possessed if it had been in the fluid state.



THE SHAPING OF THE FACE OF THE EARTH

Soon after the earth had cooled down, so that the oceans were formed, the shaping of the great continents began. The action of moving water in the making of new land is well illustrated by the vast delta of the Mississippi, where an area larger than Wales has been formed by debris deposited by the river.

Thus it might indeed be possible still to discover some trace of an old-fashioned form in the existing planet ; and a careful examination of the distribution of land and sea as represented on a terrestrial globe does, in fact, reveal a remarkable symmetry, in which we seem to recognise a surviving vestige of its early state. The great continent of Africa projects like the narrow end of a pear ; around it are oceans—the Atlantic, the Indian Ocean, and the Mediterranean Sea, which was once of far greater extent ; then comes a great dismembered ring of land, the two Americas, the Antarctic continent, Australia, Asia, and Europe. Within these, on the side opposite to Africa, is the great Pacific Ocean, which covers over the broad end of the pear.

A line drawn from somewhere in Central Africa to its antipodes in the Pacific, through the centre of the earth, would correspond to the long axis of the pear ; a second, at right angles to this, would correspond to its breadth ; and a third, at right angles to both, would correspond to the axis on which it rotates. A diameter of the earth taken through the equator is almost 8,000 miles in length, the Polar diameter is about sixteen miles shorter, and this slight difference measures the oblateness of the spheroid, or the departure of the form of the earth from a true sphere. Further, it would appear that the diameter drawn through Africa is about half a mile longer than the equatorial diameter taken at right angles to it, and this insignificant quantity measures the departure of the form of the earth from that of an oblate spheroid to that of a pear, so nearly complete is the adjustment of its form to existing conditions. Before this nice adjustment was reached, the earth must have suffered many changes, passed through many times of stress and storm, and witnessed many geological revolutions.

Earth's Unknown Changes

If, at the beginning of her career, the earth was molten, or at a very high temperature, she must have been surrounded by a very deep and dense atmosphere, for all the waters which now rest on her

surface—oceans, lakes, and rivers—would have contributed to it in the state of steam; and not till the temperature of the ground had fallen to 380 deg. C. could liquid water have begun to accumulate. Then a steady downpour of almost red-hot rain would have set in, filling up the neck of the pear and extending far and wide over its broad end.

An Age of Red-hot Rain!

The temperature would now fall somewhat rapidly, and in a short space of time the surface of the earth would have become as cool as it is at the present day. Directly the waters of the firmament had collected into the oceans, leaving behind an atmosphere like that which now exists, geological agencies of the kind we are now familiar with would begin their sway. Air and rain would exert their insidious power upon the rocks, sapping their strength, converting the hardest granite into soft sand and clay, which would be washed away by the rain through brooks and rivulets into the channels of many rivers, all hastening with their burden of sediment, to deposit it finally in the sea. Here it would accumulate, layer after layer, building up those mighty masses of strata which now form the greater part of the visible land. While this general action was everywhere in progress, wearing down continents and islands towards the level of the sea, more specialised activities were assisting to the same end.

The waves which fall upon our coasts are now constantly undermining the cliffs and extending the margin of the sea at the expense of the land, and rivers not only serve to transport sediment, but cut down their channels deep into the rock, and so carve out the most varied landscapes of hill and valley from monotonous tableland.



TWO STAGES IN THE LIFE OF THE EARTH
This illustrates in striking manner, based on the calculations of the best authorities, the comparative sizes of the earth, first as a gaseous mass, and, second, after it had cooled down and solidified into the planet on which we live. The small dot represents 8,000 miles, the earth's diameter.

When we enter into calculations we are astonished at the rapidity with which these agents perform their work even at the present day; but as we proceed farther back into the past, when the earth was full of youthful energy, their power must have been greatly enhanced. We might almost take the measure of the day as the measure of their work, for they probably accomplished as much during the eight hours' day which once existed as they do now in twenty-four hours. A little consideration will make this clear. It is the winds which, blowing over the surface of the ocean, produce the sea waves, and it is these falling on our coasts that perform the work of marine denudation. But the winds are due in the first place to the heat of the sun, and the difference of temperature established at the equator and the poles; and, in the next place, to the rotation of the earth. Thus,

Action of Winds and Tides

with the increased rapidity of rotation which we know to have existed, and with increased radiation from the sun, a very probable contingency, the winds would increase in strength and more powerfully erode our coasts. Again, with the moon in greater proximity, and with a more rapid rotation of the earth, the tides would be much higher and more frequent, and these, raising and lowering the cutting edge of the sea, greatly assist it in its work of destruction. The winds and the tides produce various marine currents, and these help to distribute the sediment which the rivers deliver into the sea, so that when stronger currents flowed as a result of more powerful tides and more violent winds, the sediments would be strewn over wider areas; hence, the more ancient strata of our planet are far more widely distributed than are those of later time.



THREE VIEWS OF THE GLOBE SHOWING HOW THE GREAT MOUNTAIN RANGES WERE FORMED

In the days when the earth's crust had formed but was still unstable, the process of cooling not having gone far enough, there would not be the mountains which now characterise it. These came when the earth contracted and crumpled up along certain well defined lines, which are now represented by the three great mountain chains of the world.

Finally, a heavier rainfall would result from a more active atmospheric circulation, creating larger rivers, and thus, at the beginning, all those denuding agents which are engaged in wearing the land down into the sea would be working at a more rapid pace. Correspondingly, all the agents which are occupied in building up deposits of sediments would have extended their operations over a wider area, laying down a foundation broad and deep.

Building Up the Earth

On the other hand, the contraction of the earth, due to the loss of its energy of rotation as well as of its internal heat, would also have proceeded more rapidly, new land would have emerged from the sea, old lands would have been submerged beneath it far less slowly than at the present day; ruptures of the crust, accompanied by earthquakes and volcanic action, would have been more frequent; and thus, by the more rapid loss of its intrinsic energy, the renovation of the earth would have kept pace with its accelerated destruction.

One effect of the contraction of the earth which has manifested itself in even late geological times is the crumpling up of the terrestrial crust into the sharp folds of mountain chains; but at the beginning this crumpling must have been far more universal and energetic. In this connection it is interesting to observe that the most ancient rocks known to us—the Archæan—never present themselves under any other form than as intensely plicated masses. They originally consisted of lava flows and volcanic ashes, of ancient sediments and limestones, into which subterranean masses of granite and other molten, deep-seated rocks have been injected; but under the intense pressures to which they were subjected after their formation they and the invading granite have entirely lost their original character, and have been metamorphosed into gneisses, schists, and marble, all sharply and closely folded together. In any given district the direction of their folding is maintained with wonderful constancy over great distances. There is no succeeding system of rocks that has been so completely transformed, so universally plicated, as this ancient Archæan complex.

In later times we can pass from stratum to stratum of the sedimentary series and read their history almost as we turn over the pages of a book; in the Archæan all are kneaded together into a state of such desperate entanglement as to defy the powers of human ingenuity to unravel them. Thus the line of demarcation between the Archæan and subsequent sedimentary systems is the sharpest and most absolute that is known to us in the history of the earth. It marks the close of our planet's infancy, the several events of which have passed into oblivion as profound as that of our own forgetfulness of our earliest days. Later events, on the other hand, are recorded in the stratified series with a faithfulness which increases as we approach existing times.

A history without dates must seem very unsatisfactory to a historian, and the question will naturally arise whether we can assign any definite time to the various critical events recorded in the evolution of the earth. At present we can only make more or less plausible estimates. Thus, from a consideration of the thickness of the sedimentary crust, and the rate at which sediments are now being deposited, it has been asserted that the interval

How We Know These Wonders

which separates us from the close of the Archæan era may amount to about twenty-six millions of years. Professor Joly, basing his argument on the undoubted fact that the ocean derives the greater part of its salt from the dissolved material contributed to it by rivers, comes to the conclusion that the ocean first came into existence about one hundred millions of years ago. As regards the birth of the moon, Sir George Darwin has given a minimum limit of fifty-four millions of years, but he adds that it may have taken place many hundreds of millions of years before this. Lord Kelvin has attempted to determine the time which has elapsed since the earth first acquired a solid crust. If we only knew the rate at which the earth is cooling we might calculate back to this time with some assurance of certainty, always, however, on the assumption that the earth is simply a hot body cooling like any other hot body—such, say, as a red-hot cannon-ball. But a few years ago it began to be seriously suspected that this assumption was a very doubtful one, for a new element—radium—was discovered in 1898, which possesses the remarkable property of spontaneously liberating heat, and this not in small quantities, but at an astonishing rate. One gramme of radium, for example, gives out enough heat in one hour to raise the temperature of one gramme of water to boiling point; hour after hour, year in, year out, this wonderful substance is setting free the energy it contains, and will continue to do so until, some thousands of years hence, it has exhausted its store. If this element should happen to exist in sufficient quantity within the earth, then the earth could not be said to be cooling just like a piece of hot iron, and the increase of temperature we experience as we descend towards the interior of the earth might possibly be due to the heat set free from radium. Indeed, the argument is not confined to the earth; it may apply also to the sun, and much of the heat we derive from that luminary may be provided by bursting atoms of radium. This was pointed out by Sir George Darwin and Professor Joly in 1903.

The Ocean 100 million Years old!

The Part Radium may play

It became obviously a question of the first importance to discover what proportion of the earth's crust consists of radium, and an investigation was undertaken for this purpose by the Hon. R. J. Strutt, who finds that the rocks composing the earth's crust contain a superabundance of radium—sufficient, if this element is uniformly distributed through the whole earth in the same proportion as it occurs at the surface, not only to make good the heat which is radiated away into space, but actually to raise the temperature of our planet, which, on this evidence, should, therefore, be growing not colder, but hotter.

This is a result as disconcerting at first sight as it is astonishing, and its effects are very wide-reaching. Of course, it completely destroys the validity of Lord Kelvin's argument, but it also deprives the nebular hypothesis of one of its cherished lines of evidence—a loss which the force of the general argument enables us to bear with equanimity.

In any case, the vast body of facts bearing on the history of the earth suffices to show that its temperature cannot be rising. Mr. Strutt has, therefore, imagined that the radium is not uniformly distributed throughout the mass of the planet, and supposes that it is restricted to an external zone forty-five miles in thickness; this would suffice to maintain the earth at its existing temperature. If, however, we admit a restriction of this kind, we are in no way bound to fix the limit at forty-five miles. All we can say is that we do not know how far downwards the radium reaches—for aught we know five miles, or even less, is as likely a limit as forty-five miles. Professor Joly, indeed, maintains that the radium we meet with is not proper to the earth at all, but comes from the sun.

On the Eve of great Events

Radium is a short-lived element, its existence being limited to a few thousand years; but as fast as it decays it is reproduced at the expense of another element—uranium—the lifetime of which is measured by hundreds of millions of years.

The last quarter of a century has proved fertile in great discoveries—more so than any corresponding period in the past. As a result, the whole world of scientific thought has been thrown into commotion; old-established theories, and even the most fundamental notions, seem to be in a state of flux. Under the stimulus of new ideas great questions, such as the constitution of matter, the origin of species, and the birth of worlds are being re-investigated with renewed energy, and we seem to be on the eve of great events.

WILLIAM JOHNSON SOLLAS

FOUR PERIODS OF THE EARTH'S DEVELOPMENT

A Postscript to Professor Sollas's Chapter on the Wonderful Story of the World's Birth, beginning on page 79

THE earth was once "a fluid haze of light." The whole solar system once formed a vast nebula, consisting of glowing gas, or a swarm of meteoroids. Our planet was slowly shaped into a globe out of this primitive nebula.

This globe was at first intensely hot, and probably liquid. A solid crust formed on the surface as heat was lost by radiation, and this crust consisted of the oldest rocks of igneous formation like the granites and gneisses. During this Archæan or Eozoic Period, the earth acquired its atmosphere and its oceans, and it is probable that the mysterious origin of life took place.

The later history of the earth since the stratified rocks began to appear, and life existed, is divided into four main periods, of which the first is known as Primary, or Palæozoic.

The First Period of the Earth

CAMBRIAN SYSTEM. The rocks formed in the Cambrian Age are mainly grits, quartzites, and conglomerates, with shales, schists, and limestones. The earth was then mostly covered by seas, and the first well-defined forms of life were of marine origin.

SILURIAN SYSTEM. The Silurian rocks are mostly sandstones, shales, and slates deposited in the seas. The first vertebrates made their appearance as fishes, whilst insects began to flutter in the air, and occasionally to alight on the emerging land.

DEVONIAN SYSTEM. This was the age of the old red sandstone. Fishes reached a high state of development, whilst the first traces appeared of land vegetation, ferns and lycopods.

CARBONIFEROUS SYSTEM. This system is exceptionally important, because its chief rock is coal, the fossilised remains of the luxuriant vegetation which grew in tropical swamps. The first terrestrial animals, true air breathers, now appeared.

PERMIAN SYSTEM. The last of the primary systems gave us the new red sandstone, distinguished from the old by lying above the coal measures. The Permian Age was apparently unfavourable to life, and is only notable for the first appearance of the land reptiles into which the amphibians developed.

The Second Period of the Earth

The Secondary Period marks the emergence of the dry land into importance greater than that of the sea.

TRIASSIC SYSTEM. The Triassic rocks chiefly consist of sandstones and hardened clays laid down in shallow sea basins. Land vegetation now first began to assume a modern type, with conifers and cycads. The seas were still richly peopled, and the land first gave a home to huge reptiles, or dinosaurs.

JURASSIC SYSTEM. This system is marked by a great variety of limestones, the product of dead sea creatures. It is essentially the age of reptiles. The ichthyosaurus disputed the seas with the plesiosaurus; the pterodactyl ruled the air; whilst on land, huge monsters like the brontosaur and diplodocus browsed on tropical vegetation. From these reptiles the birds were developing, whilst small marsupials, the oldest of the great mammalian race, skipped under the branches.

CRETACEOUS SYSTEM. This was the age of the great chalk deposits. The birds, now emerging from their reptilian ancestry, dominated its life, and the first modern plants appeared on the land.

The Third Period of the Earth

The Tertiary Period marks the true beginning of modern geological history, when the great outlines of geography were laid down, and the first representatives of modern plants and animals made their appearance.

EOCENE SYSTEM. The Eocene rocks are mainly limestones, with sandstone and hardened clays. We owe them to the sea and its organisms. Modern evergreen trees now first appeared. The mammals come to the front, with the tapir-like palæotherium and the first recognisable ancestor of the horse.

MIOCENE SYSTEM. The Miocene Age was a mountain-building period, when the great chain which runs from the Alps into Central Asia received its final uplift. Deciduous trees, like the beech and elm, now made their appearance. The giant mastodon and the formidable sabre-toothed tiger roamed the Miocene forest, and true apes—man's first forerunners—mopped and mowed in the boughs.

PLIOCENE SYSTEM. The last of the Tertiary ages set the final stamp on the geological moulding of the earth's crust. Its plants were transitional to the flora of modern Europe. Great herds of herbivora now appeared.

The Fourth Period of the Earth

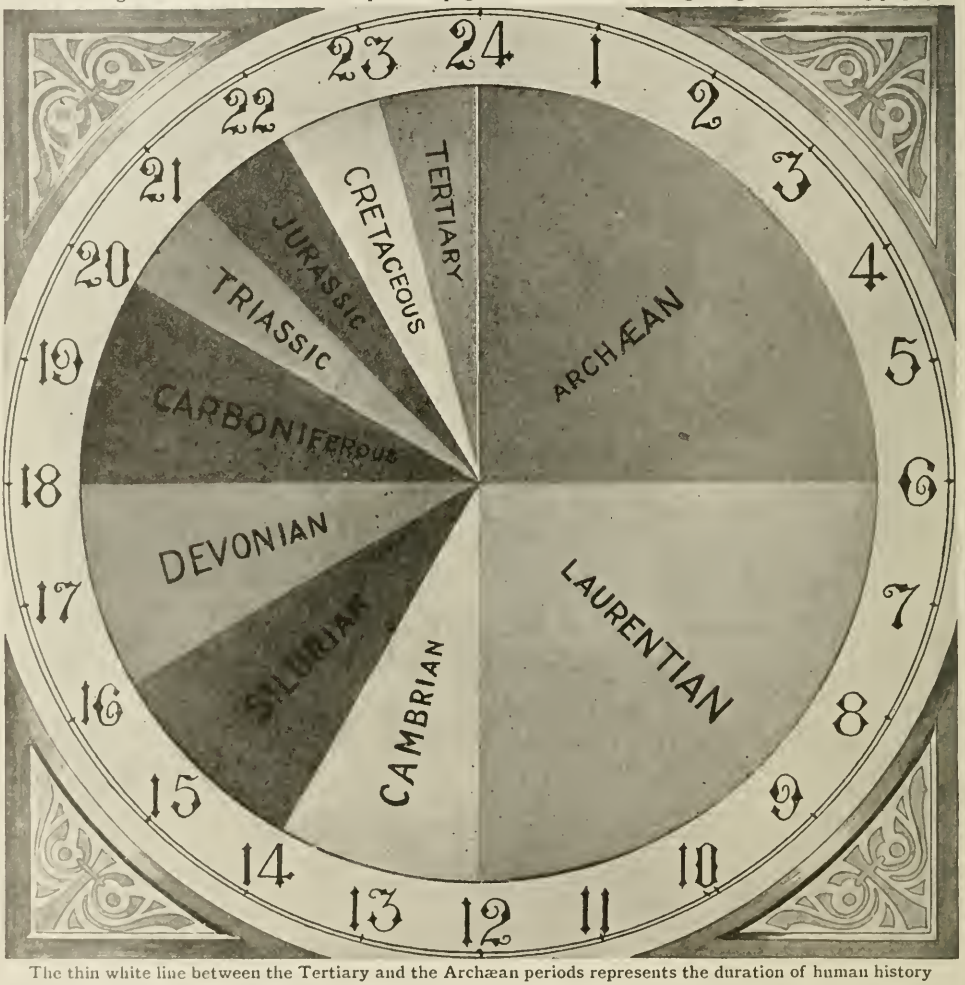
The Quaternary Period is that in which we are still living. Its outstanding feature is the appearance of man.

PLEISTOCENE OR GLACIAL SYSTEM. Its essential feature was the appearance of glacial conditions over most of the northern hemisphere, when great ice sheets rubbed our land into shape. The vegetation was Arctic, and only animals like the reindeer and the hairy mammoth could endure the cold.

HUMAN OR RECENT SYSTEM. The precise antiquity of man is still uncertain, but it was only after the close of the Glacial Period that he made his home in Europe, where he shared a precarious existence with mammoth, cave-bear, and rhinoceros. Man developed through the *Palæolithic* and *Neolithic* ages of stone implements to the *Bronze and Iron* ages, when metal was first worked. In the last of these we live.

GEOLOGICAL CLOCK OF THE WORLD'S LIFE

This page is an effort, based on Professor Lester Ward's calculations in "Pure Sociology," to show the comparative length of each geological period, and the thin white line between Tertiary and Archæan indicates the period of human history. Thin as this line is—and we could not show it thinner—it is too thick, and out of proportion to the rest of the clock. If we assume that from the beginning of the world—from its first forming into a solid sphere—to the present, time may be represented by a day of twenty-four hours, the time occupied by human history does not exceed twelve seconds. This is reckoning human history as ten thousand years. There is, of course, no possibility of obtaining more than relative figures for such a scheme as this, which should be regarded in connection with the previous page and the chart of the Beginnings of Life, facing page 96



The thin white line between the Tertiary and the Archæan periods represents the duration of human history

TABLE SHOWING PROPORTIONS OF YEARS AND HOURS

Geological Periods	Years	Hours
Archæan	18,000,000	6
Laurentian	18,000,000	6
Cambrian	6,000,000	2
Silurian	6,000,000	2
Devonian	6,000,000	2
Carboniferous	6,000,000	2
Triassic	3,000,000	1
Jurassic	3,000,000	1
Cretaceous	3,000,000	1
Tertiary and Quaternary	3,000,000	1
The Quaternary Period is that in which we live	72,000,000 =	24

TERTIARY AND QUATERNARY PERIODS

At a rough guess, three million years may be allowed for the Tertiary and Quaternary periods

Geological Periods	Years	Hrs.	Min.	Sec.
Tertiary	2,600,000	—	52	—
Pleistocene	300,000	—	6	—
Human	100,000	—	2	—
Total	3,000,000	1	—	—
Human History ..	10,000 =	=		12

HOW LIFE BECAME POSSIBLE ON THE EARTH

BY DR. ALFRED RUSSEL WALLACE

EARLY writers on the relation of man and animated nature to the material universe not only assumed that the latter existed for the former, but that both alike were the results of special acts of creation.

Furthermore, they usually took it for granted that all things were created very much in the condition in which we now see them, and that any changes that have since taken place are but slight superficial modifications of a permanent and unchanging whole. Not only were the sun and moon and stars created as appanages of the earth, but the earth itself in all its details of sea and land, hills and valleys, mountains and precipices, swamps and deserts, was made and fashioned just as we now see it, and every feature of its surface was supposed to have some purpose in connection with man.

These purposes we could, in some cases, understand, while in others they seemed wholly unintelligible, and much ingenuity was bestowed by the natural theologian and others to explain more and more of the observed facts from this point of view. The same opinions prevailed in regard to the infinite variety of animals and plants, each individual species being supposed to have been an independent creation, and all to have some definite and preordained purpose in relation to mankind.

The Old Ideas of Creation

These views, however absurd they seem to most people now, were almost universally held so recently as during the seventeenth and eighteenth centuries, and were thus coincident with one of the most brilliant epochs of our literature and our dawning science It was only towards the beginning of the nineteenth century, when geology became widely studied and its results were fully appreciated, that the more rational conception of a very slow development of the earth's surface during countless ages began to be generally accepted.

The grand nebular hypothesis of Laplace came to reinforce the views of the geologists, by showing how the earth itself may have originated as a gaseous or molten g'obe; and its slow process of cooling, with the reaction of the interior and exterior on each other, served to elucidate the facts of the heated interior, as shown by hot springs and volcanoes, as well as many of the phenomena presented by the distorted and metamorphosed strata which formed its crust. Hence it gradually came to be perceived that the condit on of the earth, with all its endless variations of surface, of continents and oceans, of seas and islands, of vast plateaux and lofty mountain ranges and extensive low and plains, with their ravines and cataracts, their great lakes and stately rivers, was subject to perpetual change f om that remote epoch when it seems to have been actually the case that "the earth was without form and void," and that owing to the greater density of the vapour-laden atmosphere, "darkness was upon the face of the deep."

Changing Conditions of the Earth

Another field of geological research forced us to the conclusion that the same continued process of change had affected the forms of life upon the earth. When carefully investigated, the crust was found to abound in the fossilised remains of animals and plants. Careful study of these showed that the oldest of all were of comparatively simple structure, nd that the higher forms only appeared in more recent epochs; while the highest of all were probably very little older than man himself. It is only during the last half century that the theory of Evolution has been elaborated and has become generally accepted as applicable to the whole of the vast cosmic process —from the development of the nebu'æ into stars and suns and systems, with a corresponding development of planets from an early condition of intense heat, through a more or less lengthy period of cooling and contraction, to an ultimate

Changing Forms of Life

state of refrigeration, the earlier and later stages being alike unsuited to the existence of life.

More important still, the discovery of the theory of Natural Selection by Darwin —and at a later period by myself—has led to a satisfactory explanation of the successive appearance of higher and more complex forms of life, and also of that wonderfully minute and complex *adaptation* of every species to its conditions of existence, and to its organic as well as its inorganic environment, which all other theories—even the most recent—have failed to grapple with.

Theory of Natural Selection

The logical completeness as well as the extreme simplicity of this explanation of organic evolution has led great numbers of thoughtful but ill-informed persons to reject it, because it seems to render unnecessary the existence of a primary intelligent cause; while another equally large but, as I think, equally ill-informed class—the so-called monists—use it to demonstrate the non-existence, or, at all events, the needlessness, of any such cause. Both alike err, because they fail to take cognisance of the fact that every form of evolution, and pre-eminently that of the organic world, is an explanation of a process of change, a law of development, not in any sense or by any possibility an explanation of fundamental laws, causes, or origins. It presupposes the existence not only of matter—itself a thing whose nature is becoming more and more mysterious and unthinkable with the advance of physical science—but of all the vast complex of laws and forces which act upon it—mechanical, physical, chemical, and electrical laws and forces—all more or less dependent on the still more mysterious, all-pervading ether. Thus, the universe in its purely physical and inorganic aspect is now seen to be such an overwhelmingly complex organism as to suggest to most minds some vast intelligent power pervading and sustaining it.

Wonderful Complexity of the Universe

Persons to whom this seems a logical necessity will not be much disturbed by the dilemma of the agnostics—that, however wonderful the material universe may be, a being who could bring it into existence must be more wonderful, and that they prefer to hold the lesser marvel to be self-existent rather than the greater. When, however, we pass from the inorganic to the organic world, governed by a new set of laws, and apparently by some regulating and controlling forces altogether distinct from those at work in inorganic nature; and when, further, we see that these organisms originated at some definite epoch when the earth had become adapted to sustain them, and thereafter developed into two great branches of non-sentient and sentient life, the latter gradually acquiring higher and higher senses and faculties till it culminated in man—a being whose higher intellectual and moral nature seems adapted for, even to call for, indefinite development—this logical necessity for some higher intelligence to which he himself owes his existence, and which alone rendered the origin of sentient life possible, will seem still more irresistible.

The preceding remarks are intended to suggest that the theory of evolution, combined with the quite recent and very startling advances in physical science, so far from making the universe around us more intelligible as a self-sustaining and self-existent whole, has really rendered it less so, by showing that it is infinitely more complex than we had formerly supposed; and further, that matter itself, instead of being, as was once believed, a comparatively simple thing, eternal and indestructible, is in all its various forms subject to decay and disintegration. We now see that the only thing known to us that we can conceive as having unending existence is mind itself; and, just as Darwin's theory of Natural Selection has opened up to us an infinite field of study and admiration in the forms and colours and mutual relations of the various species of animals and plants, so does modern science open up to us new and unfathomable depths in the inner structure of matter and of the cosmos, and thus compels us more and more to recognise a mental rather than a mere physical substratum to account for its existence.

Mind Behind the World

There is, however, another set of relations which have been hitherto very little studied—those between the organic and the inorganic worlds in their broader aspects. These are now found to be very much more complex and more remarkable than is usually supposed, and they also have an important bearing upon the great problem of the origin and destiny of man. This is a subject

which opens up a variety of considerations of extreme interest, showing that the exact adaptations of our earth—and presumably of any other planets—to enable it to sustain organic life, from its first appearance and through its long course of development, is as varied and complex and as much beyond the possibilities of chance coincidences as are any of the individual adaptations of animals and plants to their immediate environment. Most of these latter adaptations have been made known to us by Darwin and his followers, and they have excited the admiration and astonishment of all lovers of Nature. When the antecedent and grander relations of planet to life are studied with equal care, these also will, I believe, excite deeper admiration, still more profound astonishment, because any secondary laws that could have brought them about are less easy to discover, or even to imagine.

Before we can form any adequate idea of the nature of a world which shall be able to support and develop organic life, we must consider what are the special conditions that alone render such life possible. We, of course, refer to the whole of the organic world, from the lowest to the highest, not to the few exceptional cases in which life may be possible under conditions that would be fatal to the higher as well as to most of the lower forms.

Essential Conditions of Life

The one striking speciality of the higher animals—and to a less degree of the higher plants—is that of continuous, all-pervading motion, every portion of their substance being in a state of flux: each particle itself moving, growing, living and dying, and being replaced by other particles of the same nature and fulfilling the same functions. To keep up this growth, and to enable every part of the structure to be continually renewed, food is required. This is taken into the stomach of animals in the solid or liquid form, is then decomposed and recomposed, that which is useless or superfluous being thrown off by the intestines, while what is needed for growth is transformed into blood and by a wonderfully intricate system of branching tubes is carried to every part of the body, furnishing nourishment and repair alike to bone and muscle, to all the internal organs and all the outward integuments, and to that marvellously complex nervous system which also permeates every part of the body and is essential to the higher manifestations of life—to the exertion of force, voluntary motion, and, apparently, to thought itself. Add to this the constant influx of air, which at once purifies the blood and supplies animal heat, and is so important that its cessation for a few minutes is usually fatal, and we have a machine so complex in its structure and mode of action that the most elaborate of human machines is but as a grain of sand to a world in comparison.

The Miracle of Human Life

Now the very possibility of such a material organism as this depends upon a highly complex form of matter termed protoplasm, which is at once extremely plastic and of extreme instability, and is yet capable of secreting or building up its atoms into such solid and apparently durable forms as bone, horn, and hair, besides the various liquids and semi-solids which build up the organism. This fundamental organic substance consists of only four chemical elements—nitrogen, hydrogen, oxygen and carbon, and almost all animal and vegetable structures and products have the same elemental constitution, though with such widely different characteristics. Four other elements—sulphur, lime, silicon, and phosphorus—also occur in small quantities in organic tissues, to supply special needs; but these are not essential to all forms of life, and are only taken up and utilised by the living protoplasm when required. Protoplasm is undoubtedly the basis of physical life, yet it only exists in, and is produced by, living organisms. The moment such an organism dies, disorganisation and decay set in, and the whole mass becomes gradually changed into more stable compounds, or into its constituent elements. It appears, therefore, that some agency—usually termed "vital force"—must be at work, first to produce this wonderful compound, then to form it into "cells"—the physiological units of all organisms—and afterwards to direct the energies supplied by heat and light so as to build up the excessively complex structures, with all their wonderful powers and potentialities, which we term animals and plants. All this seems to imply not "a force" only, but very many forces, all of which must

Basis of Physical Life

have some kind of mind in or behind them, to direct these forces to such infinitely varied yet perfectly defined ends.

Consider for a moment one of the simplest of these cases. Let us take the minute seed of one of the great tropical fig-trees, and another seed of a strawberry, or of garden cress. Both will be about the same size and shape, and the most acute microscopist would not find any difference in the internal structure that could intelligibly account for the different results when these little grains of protoplasm are exposed to identical conditions. For, even if planted near each other, and exposed to the same amount of heat and moisture, to the very same atmosphere, and the same kind of water, as well as identically the same soil, yet invariably the one will grow into a large tree, the other into a small herb, and in the course of time, still with no change whatever of the physical conditions to which both are exposed, each will produce its peculiar foliage, and flowers, and fruit, very different in all their characters from those of the other. Were this result not so common as to seem to us "natural," we should call it a miracle; and it is really and essentially as inexplicable as many things which are termed miracles only because they are unfamiliar and inexplicable.

A Marvel of Every Day

Now, this wonderful substance, the physical base of all life—and as it is the only base that exists, or has ever existed, on the earth, we may fairly assume that no other is possible—can only maintain itself and perform its functions under certain very definite conditions, which conditions are now maintained on our earth's surface, and must have been maintained throughout the long geological periods during which life has been slowly developing What these conditions are we will now proceed to show.

The First Essential for Life

The first essential for organic life is a certain very limited range of temperature. We are so accustomed to consider the change of temperature from winter to summer, from day to night, and that which occurs when we pass from the tropics to the Polar regions as being very great, that we do not realise what a small proportion such changes bear to the whole range of temperature that exists in the known universe. The absolute zero of temperature is calculated to be minus 461° F., while the heat of the sun has been determined to be over 10,000° F., and many of the stars are known to be much hotter than the sun. The actual range of temperature is therefore enormous; but any development of organic life is possible only within the very narrow limits of the freezing and boiling points of water, since within those temperatures only is the existence of liquid water possible. But a much less range than this is really required, because albumen, one of the commonest forms of protoplasm, is coagulated or solidified at a temperature of about 160° F. Now, if, as is generally believed, the earth has been once a liquid or even a gaseous mass and has since cooled to its present temperature on the surface, and the sun is undergoing a similar process of cooling, we are able to understand that the very limited range of temperature within which life development is possible implies an equally limited period of time as compared with that occupied by the whole process of solar and planetary development.

We Live by the Heat of the Sun

It must be understood, however, that the present temperature of the earth's surface s due entirely to sun-heat, and that if that were withdrawn or greatly diminished the whole surface of the globe would be permanently far below the freezing point and all the oceans be frozen for a considerable depth; so that all organic life would become extinct. Under such conditions no renewed development of life would be possible; and it is therefore quite certain that the sun has actually maintained the uniform moderate temperature required, and must continue to maintain it for whatever future period man is destined to continue his existence upon the earth.

But it is not only a certain amount of heat that is required, but also a sufficient quantity of light; and this implies a further restriction of conditions, because light is due to vibrations of a limited range of wave-length, and without these particular rays plants cannot take the carbon from the carbonic acid in the atmosphere, and by its means build up the wonderful series of carbon compounds, including protoplasm, which are essential for the life of animals. What is commonly termed dark heat, therefore, would not be sufficient for the development of any but the

lowest forms of life, even though it produced the necessary temperature during a sufficient period of time.

All organisms, from the lowest to the highest, whether plant or animal, consist very largely of water, and its constant presence either in the liquid or gaseous form is essential for organic life. On our earth oceans and seas occupy the greater part of the surface, while their average depth is so great that the quantity of water is sufficient to cover the whole of the globe free from inequalities two miles deep. It is this enormous amount of water that supplies the air with ample moisture, such as renders the life of the tropics so luxuriant. Yet even now the inequality of water-supply is such that large areas in all parts of the earth are what we term deserts, only supporting a very few forms of life that have become specially adapted to them, and certainly unfitted for the continuous development of life from lower to higher forms.

Water and the Atmosphere

Water is also of immense importance as an equaliser of temperature, the currents of the ocean conveying the warmth of the tropics to ameliorate the severity of temperate and Polar regions, while the amount of water-vapour in the atmosphere acts as a retainer of heat during the night, without which it is probable that the surface of the earth would freeze every night even in the tropics. When we consider that water consists of two gases—oxygen and hydrogen—in definite proportions, and that without their presence in these proportions and in the necessary quantity the development of organic life would have been impossible, we find that we have here a remarkable and very complex set of conditions which must be fulfilled in any planet to enable it to develop life.

But this is not all. The atmosphere is so intimately associated with water in its life-relations, and is itself so absolutely essential to the existence from moment to moment of the higher animals, that the two require to be duly proportioned to each other and to the globe of which they form a part.

In the first place the atmosphere must be of a sufficient density, this being needed in order that it may be an adequate storer up of solar heat, and also in order that it may be able to supply sufficient oxygen, water-vapour, and carbonic-acid gas for the requirements of both vegetable and animal life. We have a striking example of the use of air as a storer-up and distributor of heat and moisture in the very different character of our south-west and north-east winds. The effect of the density of the air is equally well shown when we ascend lofty mountains where we find perpetual snow and ice, due simply to the fact that the air is not dense enough to retain the heat of the sun—which is actually greater than at low levels—so that at night the temperature regularly falls below the freezing point. On the other hand a very much denser atmosphere would absorb so much water vapour as probably to shut out the light of the sun, and thus have a prejudicial effect on vegetable life.

How Water Protects Earth by Night

Again, there is good reason to believe that the proportions of the various gases in the atmosphere are, within certain narrow limits, such as are most favourable not only for the life that actually exists, but for any life that could be developed from the elements that constitute the universe. Oxygen has properties which seem absolutely essential to organic life; but nitrogen, though only serving to dilute the oxygen so far as the higher animals are directly concerned, is yet indirectly essential for them, since it is in vegetables a constituent of that protoplasm which is the very substance of their bodies.

Now, plants obtain their nitrogen mainly from the minute proportion of ammonia that exists in the atmosphere, and this ammonia is formed by the union of the nitrogen of the air with the hydrogen of the water-vapour under the influence of electric discharges—that is, of thunderstorms. It is evident, then, that the required amount of this essential compound will depend upon a due adjustment of the quantities of nitrogen and aqueous vapour always present; while the electric discharges seem to be due to the friction of various strata of air with each other and with the earth's surface, due to the winds and storms; and winds are due to highly complex causes, involving the rate of the earth's rotation, the rise and fall of the tide, the density of the atmosphere, the quantity of its aqueous vapour, and the amount of solar heat which it receives. Unless all these very diverse factors existed in their due proportion, some of the results

Use of Thunderstorms

might be highly prejudicial if not quite inimical to the development of life. To these various adaptations of our gaseous envelope we must add one other. Carbonic acid gas in the atmosphere is absolutely essential to vegetable life, while it is directly antagonistic to that of the higher animals. Its quantity must, therefore, be strictly proportionate to the needs of both; and that beneficial proportion must have been preserved throughout the whole period of the existence of the higher air-breathing animals.

The Wonder of the Atmosphere

These various considerations show us that our atmosphere, consisting as it does mainly of two common gases mixed together, and therefore seeming to most people one of the simplest things possible, is really a wonderfully complex arrangement which is adapted to serve the purposes of living organisms in a great variety of ways. But this by no means exhausts the subject of its adaptation to support and develop organic life, because its very existence on the earth in a suitable quantity and composed of the essential elements can be shown to depend on other and deeper relations which will now be pointed out.

The older writers on the subject of the habitability of the planets took no account whatever of the importance of size, distance from the sun, period of rotation, and obliquity of the ecliptic as determining the possibility of organic life, but simply assumed that, because the earth possessed an abundant life-development, all the other planets must also possess it. But we know that the above-mentioned factors are of very high importance, as we will proceed briefly to point out.

It is now believed that the amount of atmosphere possessed by a planet is due mainly, perhaps entirely, to the planet's mass, and its consequent gravitative power. Spectrum-analysis has shown that vast masses of gaseous matter exist in the universe, and it is probable that, in a state of extreme tenuity, these are very widely diffused. Just as meteoric dust is constantly attracted to the earth, and periodically in larger quantities, so are gases, and supposing the aggregations of free gaseous matter to have been distributed with some approach to uniformity, then, as planets grew in size, they would also tend to secure a larger amount of the diffused gases, thus forming deeper atmospheres. The observed facts agree with this view. The largest planets, Jupiter and Saturn, have such a depth of atmosphere as permanently to obscure any solid interior they may possess. The only planet closely approaching the earth in size and density—Venus—has an atmosphere which appears to be loftier than ours, but it may be composed of different gases. Mars, which has only one-ninth the mass of the earth, has a lofty but very tenuous atmosphere, and probably no water, the Polar snows being due probably to the freezing of some dense gas. The climate and physical condition of Mars is, however, still a subject of much controversy, which I hope to discuss in a separate work dealing with the arguments of Professor Lowell [see page 105]. In that volume the reader will find, fully set forth my reasons, on scientific grounds, against the supposed habitability of Mars.

Earth's Envelope of Gas

But, besides attracting cosmic masses of gaseous matter to form its atmosphere, there is another equally important function of the mass of a planet—its selective power on the kind of gases it can permanently retain in a free state. The molecules of gases are in a condition of rapid motion in all directions, which explains the elastic force they exhibit. The speed of this motion has been determined for all the chief gases, and also the gravitative force necessary to prevent them from continually escaping into space from the upper limit of the atmosphere. Thus the moon, which has a mass only one-eightieth that of the earth, can retain no free gas whatever on its surface. Mars can retain only the very heavy gases, but neither hydrogen nor water-vapour. The earth, however, has force enough to retain all the gases except hydrogen, which is just beyond its limit; and this may explain why it is that there is no free hydrogen in the atmosphere, although this gas is continually produced in small quantities by submarine volcanoes, is emitted sometimes from fissures in volcanic regions, and is a product of decaying vegetation. Once united with oxygen to form water, it becomes amenable to gravity in the form of invisible aqueous vapour, and is thenceforth a permanent possession for us in its most valuable form.

The Earth Selects and Uses Gas

The very accurate adjustments that render our earth suitable for the production



EARLY ICE AGE, WHEN MAMMOTHS ROAMED THE EARTH AND MAN WAS ARISING

and long-continued development of organic life, culminating in man, may be well shown by another consideration. If our earth had been 9,600 miles instead of 8,000 miles in diameter—a very small increase in view of the immense range of planetary magnitudes from Mercury to Jupiter—with a slight proportionate increase in density, due to its greater force of gravitative compression, its mass would have been about double what it is now. This would probably have led to its having attracted and retained double the amount of gases, in which case the water produced would have been double what it is—perhaps even more, because hydrogen gas would not then escape into space as it does now. But the surface of the globe would have been only one-half greater than at present; so that, unless the ocean cavities were twice as deep as they actually are, the whole surface of the earth—except, perhaps, a few tops of submarine volcanoes—would have been covered several miles deep in water, and all terrestrial life would have been impossible.

The Deep Atmosphere of Venus

From the various considerations here set forth it appears clear to me that no other planet of the solar system makes any approach to the conditions essential for the development of a rich and varied organic life such as adorns our earth. One only—Venus—has a sufficient bulk and density to give it the needful atmosphere; but as it receives about twice as much solar heat as does the earth, it is probable that its very deep atmosphere may be mainly due to the fact that a large proportion of its water is held in a state of vapour, its seas and oceans being proportionately reduced in extent. Judging from what happens on the earth, this would probably lead to an excessive area of deserts, and thus be inimical to life. But this planet appears to possess one feature which renders it fundamentally unsuitable for organic life.

Several modern observers have found that the older astronomers were all in error in giving Venus a rotation-period almost exactly the same as ours, an error due to the indefinite and variable markings of its surface. They have now deduced a period about equal to that of its revolution round the sun—a rate which has been confirmed by spectrum-analysis, and further confirmed by the fact that this planet has no measurable polar compression. As during transits of Venus over the sun's disc the conditions for the accurate measurement of the compression, if any exist, are the best possible, and as none has been found, this alone affords a demonstration that the rate of rotation must be very s ow, because the laws of motion *necessitate* a definite amount of equatorial protuberance corresponding to that rate. Half the surface has, therefore, perpetual day and the other half perpetual night, leading to violent contrasts of heat and cold for the two hemispheres with, in all probability, correspondingly violent winds, rains, and electrical disturbances—conditions so entirely opposed to the uniformity of temperatures and stability of meteorological phenomena during long geological epochs which are essential for the full development of organic life, that such development is perhaps less probable on this planet than on any other.

Why there is no Life on Venus

I think I have now shown not only that no other planet in the solar system makes any approach to the possession of the varied and complex adaptations which are essential for a full development of organic life, but also that on the Earth itself the conditions are so numerous and so nicely balanced that very moderate deviations in excess or defect of what actually exists in the case of any one of them—and of others not referred to here—might have rendered it equally unsuitable, so that either no organic life at all, or only a very low type of life, could have been developed or supported.

If, then, the more superficial indications of design in the relations of animals to their environment, and of man to the universe, have been shown by modern science to have required no *special* interference of a higher power to bring them about, but that they have been due to natural laws acting in accordance with and in subordination to the deeper laws and forces that determine the very constitution of matter and the unknown power and principle we term "life,"—yet, on the other hand, we find that a more careful study of the outer universe, or cosmos, reveals a new set of adaptations not less wonderful or more easily explicable by chance coincidence than those presented by the organic world.

There is Purpose in our World

Even the very brief sketch of the subject here given suggests the idea of *purpose* in a world so precisely and uniquely

adapted to develop organic life, and to support that life during the countless ages required for the completed evolution of man. But that suggestion becomes a logical induction when the whole of the available evidence is set forth, as I have attempted to set it forth in my work on "Man's Place in the Universe." I have there shown not only that the cumulative evidence for the earth being the only supporter of a fully-developed organic life within the solar system is irresistible, but that there is some direct, and much more indirect, evidence that this uniqueness extends to the whole stellar universe; and it is certain that no particle of *direct* evidence for the existence of organic life elsewhere has been, or is likely to be, adduced.

I have also shown (in an appendix to the second edition of my book) that the purely biological argument for the uniqueness of the development of man—as the culminating point of one line of descent throughout the diverging ramifications of the animal kingdom—is overwhelmingly strong; hence the logical conclusion from the whole of the evidence is that man is the one supreme product of the whole material universe.

My object in the present essay has been limited to showing that, besides and beyond the special adaptations of the various kinds of animals and plants to their special environments, there exist in the earth as a planet, in its various physical and cosmical relations, a whole series of adaptations of a very remarkable character which, so far as we can judge, are essential to its function as a life-producing world. The study of these adaptations, therefore, may be considered to be appropriate here, as constituting a preliminary chapter in the natural history of the Earth and of Mankind.

ALFRED RUSSEL WALLACE



IN THE DAYS OF THE SEA MONSTERS

Reproduced from a plate in Hawkins' "Book of the Great Sea Dragons."

THE BEGINNING OF LIFE ON THE EARTH

BY DR. C. W. SALEEBY

For some decades past we have been faced with a critical difficulty at the most critical and important point in the history of the earth. In the first place, it has been definitely established that in the earlier period of its history there was no life whatever—as the word is usually understood—upon the earth, as is abundantly shown elsewhere in this work. None of the conditions that make life possible, as we know it, were satisfied. As a recent French writer has said, life is an aquatic phenomenon, absolutely incapable of existence except in the presence of liquid water; and there was an age of vast duration in the history of the earth when all its water must have been in the gaseous state. Other reasons of equal cogency may be at present ignored. The broad fact is that, however widely students of this matter may differ on other points, there is absolute agreement upon the cardinal and initial fact that whereas there is life upon the earth now, there was a time when there was none.

The Earth Without Life

Now, in the ever memorable year 1859, Charles Darwin published a volume, the main thesis of which is now universally accepted, wherein the following is the last sentence: "There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved." "The Origin of Species" may be said, in a word, to establish the doctrine of the evolution of living organisms upon the earth "by laws acting around us"—to use Darwin's own phrase. But Darwin's work begins with and assumes the existence of life as an established planetary fact. There obviously remains a tremendous gap in the evolutionary philosophy as it stands in our statement of it thus far; and the first fact which we have to note is that the existence and recognition of this supposed gap, so far from being a matter of common recognition from the earliest times, so far from being an observation made by the critics of the doctrine of evolution, is, on the contrary, a special doctrine peculiar to scientific study and of quite recent origin, being indeed established—as was supposed—within the memory of many now living.

A Gap in the Philosophy of Evolution

If we turn to the first chapter of Genesis, we shall see no suggestion or recognition of the supposed difficulty involved in the beginning of life upon the earth. In this immortal piece of ancient poetry it is stated that after the creation of the heaven and the earth, which were at first "without form and void," God said, "Let the earth bring forth grass . . . and it was so"; and later God said, "Let the waters bring forth abundantly the moving creature that hath life . . . let the earth bring forth the living creature after his kind." Here we have suggested to us the natural origin of living creatures in earth and sea under the will and direction of the Creator as conceived by the poet.

Partly to the influence of Genesis, partly to the apparent facts of observation, and partly to the views which would naturally be held by poets and thinkers, we may attribute the belief which has been held by man, simple and philosophic alike, since first men began to think, until, we may say, the third quarter of the nineteenth century—the belief that the lowest of living things arose by a natural genesis or so-called spontaneous generation in suitable materials already provided on the land or in the sea. It was not suggested or believed that very large and conspicuous living creatures were thus bred, though it is true that the ancients thought even crocodiles to be generated by the action of the sun upon the slime of the Nile. The living creatures supposed to arise naturally in the womb of earth—the all-mother—were mostly small crea-

First Ideas on the Origin of Life

tures, like insects and worms. The ordinary belief of the uninstructed to-day—a belief which they share with the greatest thinkers of antiquity and the Renaissance—is that the cheese-mite, for instance, is evolved from the substance of the cheese. Now, it is of particular moment to observe the vast contrast between the significance of this belief prior to the publication of "The Origin of Species" and its significance to-day. Before we accepted the doctrine of organic evolution, the supposed spontaneous origin of the cheese-mite in cheese, or of the maggot in putrid meat, was of no very great moment; a maggot or a cheese-mite is an extremely insignificant object. So far as the great problems of the universe are concerned, a cheese-mite, as we say, is neither "here nor there," and its spontaneous generation was not regarded as a fact of any great moment.

The Coming of Darwin

But then there arose Darwin, who, in establishing the doctrine of organic evolution already supported by his own grandfather, by Lamarck, and Goethe, and Herbert Spencer, gave an entirely new importance to the question. He demonstrated how we could conceive the evolution of all organisms, including man, from a "few simple forms," under the continuous influence of natural law; and thus such forms ceased to be insignificant, and the manner of their genesis came to be a vital problem in more senses than one. Such organisms—the mite, the maggot, and even the mould—could no longer be regarded as insignificant, for they were revealed as not unlike the ancestors of man himself.

The question of the beginning of life upon the earth had only to be satisfactorily answered for the establishment of the belief in a continuous process of evolution by natural law, even from the very beginning of the earth itself "without form and void," until the production of the highest living organisms which it displays in our own time. And all ages, even by the mouths of their great thinkers and closest observers, had agreed in giving an apparently satisfactory answer to this question. It might well have been thought that Darwin was quite entitled to ignore altogether, as he did, the question of the origin of life. Everyone knew, so to say, that simple living organisms were every day evolved in organic refuse and elsewhere. Darwin himself, if we may judge from a casual remark in a letter, regarded the question apparently as purely speculative, and of small real moment. It is all rubbish, he says, thinking about the origin of life; we might as well argue about the origin of matter. We must beware of illegitimately attributing opinions to the immortal dead, but this remark, though a casual one, does seem to suggest that Darwin regarded these two questions as on all-fours, if not, indeed, as different forms of the same question, and that, if he had actually formulated his views, they would have taken the shape of the doctrine which asserts that life is implicit and potential in matter; in other words, that when suitable conditions arose—such, for instance, as the presence of liquid water—matter would display the properties of life.

Evolution a Continuous Process

Now, the remarkable fact—one of the most striking in the history of science—is that the time-honoured belief in spontaneous generation should have been attacked, and attacked with apparent success, just at the very time when it would otherwise have begun to assume real philosophic importance. For ages it had been accepted, taken as a matter of course, and not regarded as having any particular bearing upon the supreme questions. Then there came the time when this belief would have been an all-important link, without which the chain of evolution could not be completed, a link without which we were left to contemplate a perfect chain of inorganic evolution—the history of the earth before life—and a perfect chain of organic evolution—the history of life upon the earth, with an abyss between the two that could not be bridged, for how came life where there was no life? A series of experiments were made, experiments in which, strikingly enough, some of the greatest evolutionists of the day took a leading part, and these seemed to upset, just when it was most wanted by themselves for the establishment of their new doctrine, the belief which had gone without question for so many ages.

An Abyss that could not be Bridged

Now, some may be inclined to wonder how it should be that certain pioneers of the new doctrine of evolution, such as Tyndall and Huxley, should devote themselves with such persistence and

labour and force to the overthrow of a doctrine which was so necessary for the complete establishment of their own case—so much so, that when they had overthrown it, they found themselves, as regards their own doctrine of evolution, placed in a difficulty from which they did not live to emerge. It is my own belief that this question can be answered, and the answer is of strict relevance to our present inquiry. I believe that Huxley and Tyndall were largely impelled by the desire to oppose a doctrine of the nature of life which was current in their time and is usually called "vitalism." We shall not begin to understand the question of the beginning of life upon the earth, as that question may be legitimately stated to-day, unless we fully realise in what terms the doctrine of spontaneous generation was accepted in the past, and an understanding of this will teach us that the present-day revival of this doctrine presents it in a form very different from that which it so long held. Our discussion must be somewhat philosophic in character, but the question at issue is a highly philosophic one, and the reason why we have made so little progress in answering it hitherto is that men of science have too frequently discussed it without paying any serious attention to the profound philosophic questions which really underlie it. We have permitted ourselves to talk freely about life and matter, whilst claiming the right to take for granted the absolute validity of our conceptions of life and our conceptions of matter.

Is Life only Self-movement?

It was universally held by those, philosophic and simple, who also held throughout so many centuries the belief in spontaneous generation, that there is an overwhelming contrast between living and lifeless matter, and it was their belief in this overwhelming contrast that led them to give to the doctrine of spontaneous generation, as they held it, a form which cannot possibly be defended. The great character of life was conceived to be self-movement, this self-movement being displayed in the matter which composed the living organisms. But it was universally held that matter, as it was seen otherwise than in living organisms, was obviously and notoriously inert, gross, brute, and dead.

The great influence of Plato taught men to despise matter in this fashion, and there was the everyday experience that a stone lies where it is placed until something from outside moves it, being, therefore, inert, whilst a living creature such as a bird moves freely at its own will. The more strongly men held the natural matter of which the earth is composed to be inert, the more necessary was it to suppose that when life was displayed in it the difference consisted in the taking possession of this dull clay by a vital force—a mystic and wonderful principle of quickening—which endowed even gross, inert matter with activity and power. From the time of Plato until the last few years of the nineteenth century thinkers vied with one another in insisting upon the impotence and grossness and inertness of matter, and each fresh insistence upon this doctrine rendered more necessary a corresponding doctrine of vital force or vitalism, which should explain the amazing transformation undergone by, let us say, the gross and inert matter composing food, when that food was converted by the "living principle" into the tissue of a living creature, and then displayed self-movement.

The Influence of Plato

This doctrine of vitalism, which held sway for so long, was naturally invoked to explain the origin of life upon the earth, when the advance of astronomy and geology demonstrated a natural evolution for the earth and proved that there must have been a time when no life was possible upon it. The prevalent conception of matter came in at this point and denied altogether any such monstrous doctrine as that the wonderful thing called life could spontaneously arise in the despicable thing called matter. The material of the earth, whether solid, liquid or gaseous, consisted of eternal, unchangeable, and indestructible atoms. These were moved as forces from outside moved them. They had no energy or power of their own. Men simply thought of them as of incredibly minute grains of sand of various shapes and sizes, and it was as impossible to conceive of life being spontaneously generated in a chance heap of inert atoms as to conceive that a heap of grains of sand should organise themselves into a little organism. As for spontaneous generation occurring on the earth to-day, the development of mites

Philosophy of Dead Matter

from cheese and so forth, that was a very different matter, men must have thought—in so far as they thought at all—since cheese and flesh and so forth were themselves products of life. It is well worth noting that the common doctrine of spontaneous generation was always held in reference to organic materials, such as the slime of the Nile—not the dry sand of the desert. The reader may be inclined to say that men's beliefs on this subject in the past generation make very confused reading, and indeed, that is true. But the fact is that their beliefs were most confused. The work of Darwin had staggered everybody, and straightforward, systematic, unprejudiced thinking was very nearly impossible in the welter of controversy. Nevertheless, something apparently definite was done. The doctrine of the beginning of life upon the earth was left almost undiscussed, and the accepted notion of the nature of matter—a notion which to us who know radium seems puerile—was left unchallenged in all its falsity. But the work of the great French chemist Pasteur led to a close examination of the belief that humble forms of life are daily produced from lifeless organic materials, and the conclusion was reached that no such spontaneous generation occurs.

The Great Work of Pasteur

This conclusion is of great importance in the history of modern thought, and it was proclaimed with much rejoicing and vigour as a great achievement of science, whilst some of its chief advocates seemed at times to forget the extreme awkwardness of the inferences which had to be made from it. The doctrine may be stated in Latin in the form of the familiar dogma, "Omne vivum ex vivo," every living thing from a living thing. Just as the existence of a man is quite sufficient to prove to us the prior existence of living human parents, just as we feel sure that every beast of the field has had living parents and that every oak has sprung from an acorn developed in a previous oak, so, according to the doctrine of "Omne vivum ex vivo," we must believe that every living creature, whether human, animal, or vegetable, whether as big as the mammoth or as small as the smallest microbe not one-twenty-thousandth part of an inch in diameter, has sprung from living parents. Nature, according to this doctrine, was divided—as Nature, being a mighty whole, can never be divided—into two absolute categories, the living and the lifeless, or living matter and dead matter. Dead matter was notoriously dead and impotent, and life could not conceivably arise in it, though it could be used by life for purposes of food. On the other hand, living matter rejoiced in the possession of all those great attributes which lifeless matter lacked, and, in accordance with the contrast between the two kinds of matter, the living could never be produced from the lifeless but only from the living: for every creature, microbe or mammoth or man, we must trace back in imagination a series of living ancestors, differing perhaps in various characters, but always living. This series must be traced back and back and back until——?

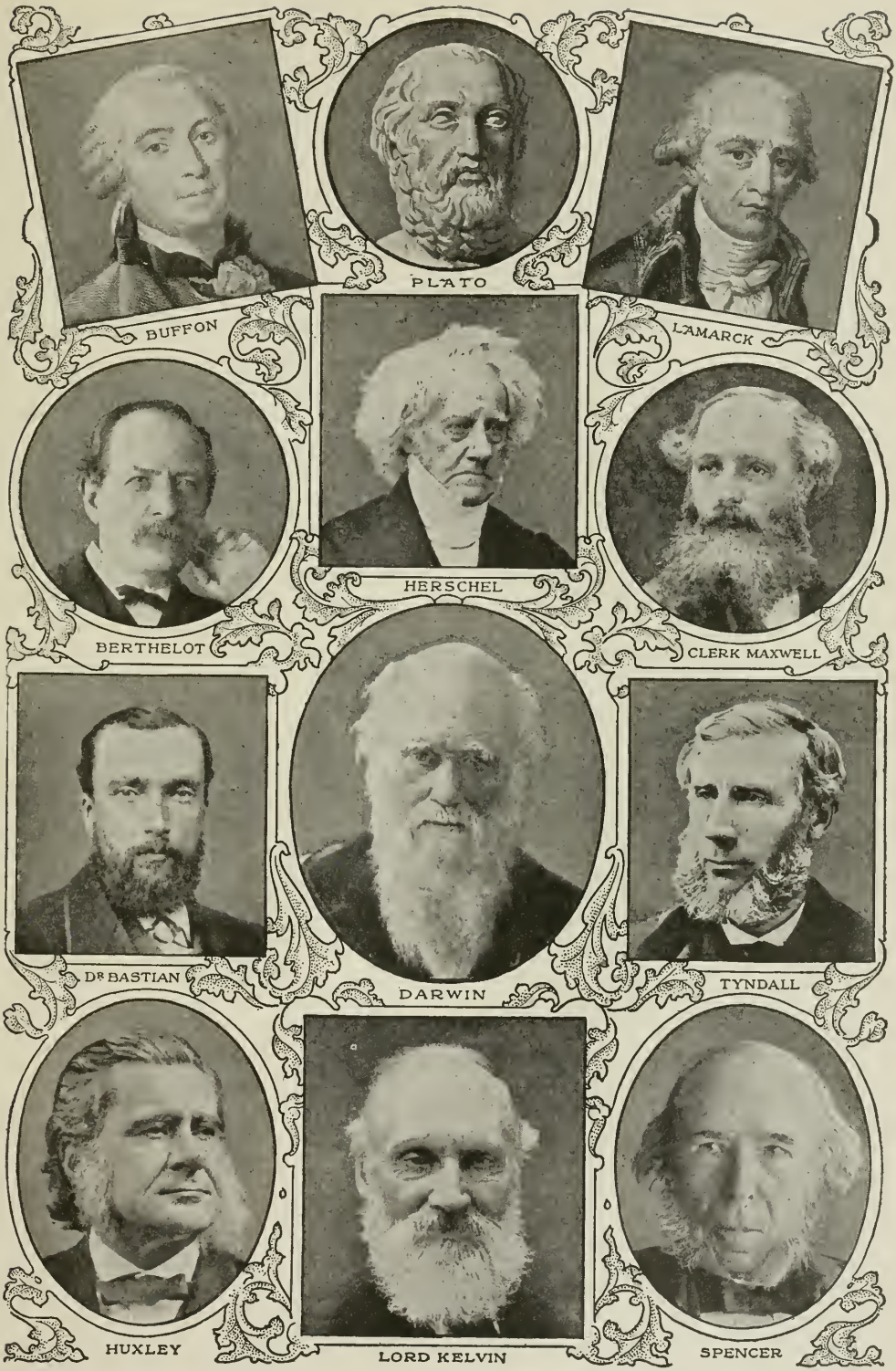
Every Living Thing from a Living Thing

And there the difficulty arose. For the uninhabitableness of the primitive earth was a fact of which men of science were as certain as if from some habitable planet they had been able to gaze upon it. Notwithstanding the dogma of "Omne vivum ex vivo," it was impossible to assert that every living creature has an *endless* series of ancestors. How, then, did life begin?

Life Evolved from the Lifeless

What we may call the doctrine of the older orthodoxy—the doctrine of special creation, of supernatural interposition for the introduction of a new entity into the scheme of things—offered one alternative. To accept it, however, would be to abandon the whole modern conception of natural law and of a universe which was not created once on a day, and has not been tinkered with subsequently, but from everlasting to everlasting is the continuous expression to us of the Infinite and Eternal Power which to some eyes it veils and to others it reveals. Unless we are to abandon our philosophy, this alternative cannot be accepted, and it is now accepted by no philosophic thinker.

Thus, whether "Omne vivum ex vivo" be true or false to-day, we are compelled to accept the only other alternative, which is that it has not always been true, or, in other words, that life was spontaneously evolved from the lifeless (so-called) at some remote age in the past. Just at the present time philosophic biology is out of fashion. Minds of the great cast which endeavour to see things in their eternal



MASTER THINKERS WHO HAVE CONTRIBUTED TO OUR KNOWLEDGE OF LIFE

Photos by Gerschel, Maull & Fox, E. Walker, London Stereoscopic, Barraud, and Mills

aspect have been lacking to the science of life since the days when Huxley and Spencer were in the plenitude of their powers. Anyone who cares to compare the principal reviews of the last decade with those same reviews from the year of, say, 1875 to 1890, can readily see this fact for himself. In the absence of that deliberate thought and discussion without which clear ideas on any subject are impossible, what may be called the official opinion of biology at the present time is thus most remarkable and contradictory. On the one hand, it is strenuously asserted as a matter of dogma that at the present day no life is produced or producible upon the earth except by the process of reproduction of previously existing life; and on the other hand it is asserted—when the direct question is put, though otherwise the subject is simply ignored—that life must somehow or other have been naturally evolved in the past, presumably once and for all. I have called this opinion contradictory, and it is indeed far more contradictory and unsatisfactory than it may at present appear. The obvious question that the critic asks is, "If then, why not now?" The answer alleged is that, of course, the experiments of Pasteur and Tyndall, to which some reference must afterwards be made here, merely demonstrated the impossibility of the spontaneous generation of life in our own day or under any conditions similar to those of our own day; but doubtless the first few simple forms of living matter arose by natural processes at some distant epoch "when the conditions were very different from those that obtain to-day." Now it happens to be true that every difference between past and present conditions which physics and geology and chemistry can assert tends to the probability that if spontaneous generation is impossible now, it must have been a hundredfold more impossible a hundred million years ago. Yet for some three decades the great majority of biologists have been content to believe that spontaneous generation is impossible now, even though land and sea and sky are packed with organic matter under the very conditions which obviously favour life—as the all but omnipresence of life abundant to-day demonstrates—but that spontaneous generation was possible in the past when, by the hypothesis, there was no organic matter present at all, and when life had to arise in the union and architecture of such simple substances as inorganic carbonates! Such biologists are like those who know that the human organism can be developed from the microscopic germ in a few years, but find it incredible that man can have been developed from lowly organisms in æons of æons. Nor has any living biologist even attempted to make an adequate answer to the question, why what is impossible now should have been possible a hundred million years ago. On the contrary, so soon as the matter is looked at philosophically, we see that all the probabilities, all the analogies, all the great generalisations of science, are in favour of the belief that life must be arising from the lifeless now, as in the past, whenever certain conditions, such as the assemblage of carbon, oxygen, nitrogen and hydrogen in the presence of liquid water, are satisfied.

"If then, why not now?"

Is Life Now Arising from the Lifeless?

For the moment, however, I propose to postpone this question of the truth of "Omne vivum ex vivo" at the present day, for I desire to throw into the forefront of my argument two quite recent developments of science, unreckoned with because non-existent in the controversy of the 'seventies, and in my judgment not yet duly appraised to-day. In the present and future discussion of the manner and causation of that supreme event in the earth's history, the beginning of life upon it, we must reckon with two new orders of inquiry relating to facts unthinkably contrasted in physical magnitude yet equally relevant to our subject. The first series of facts with which I will deal are *astronomic*, and the second *atomic*.

In discussing the origin of life upon the earth, we of the twentieth century must recognise such facts as may be obtainable in regard to life upon other orbs than ours. Now, in the first place, there is at least one illustrious contemporary astronomer, Professor Pickering, the chief living student of the moon, in whose opinion there are many evidences upon our satellite of the action of vegetation, either past or present. This, of course, is not the place for a discussion of that evidence; it is, however, the place to record the most highly qualified opinion at present

The Evidence from Other Worlds

obtainable, and to remind ourselves of the certainty that when the moon was first borne—or born—from the earth, life cannot possibly have been evolved, since the conditions of temperature alone, to name one factor, were such as life could not sustain, no liquid water being extant. There is some reason to suppose, then, that, whatever the present case may be, life was at one time spontaneously evolved upon the moon.

Vegetable Life on Mars

The second piece of astronomical evidence relevant to our inquiry is afforded by the planet Mars. This, of course, is a much controverted question, which cannot receive any discussion here. It suffices to note that Professor Lowell, who is admittedly the greatest living authority on Mars, has observed and photographed, not merely to his own satisfaction, but to that of an ever increasing number of astronomers, signs of vegetation upon Mars. I will say nothing here as to the existence of intelligent beings there. That fascinating and momentous question, upon which there will doubtless be difference of opinion for some time to come, does not now concern us. It is of quite sufficient significance for our present purpose if the existence of merely vegetable life, and no more, upon the planet Mars can be demonstrated, and there are now very few astronomers indeed who question this demonstration, however chary they may be of going any further. I submit that the question of the beginning of life upon the earth should not be considered without reference to the evidence which suggests the spontaneous origin of life upon the moon, and to the practically positive demonstration of the present existence, with seasonal alternations, as on our own earth, of vegetable life in the watered areas of Mars.

These considerations were entirely unknown to the great controversialists of a generation ago; but there is another order of facts, entirely unimagined by them, which are now demonstrable and admitted. For them, or for most of them, the ancient conception of matter which we trace to Plato was substantially true; nay, more. The recent work of the physicists and chemists had endowed that ancient conception of matter as gross and inert and dead with a new concreteness and vividness.

The Earth's Crumbling "Foundations"

One of the greatest physicists of the age, James Clerk-Maxwell, in his famous address to the British Association, spoke of atoms as the "foundation stones of the visible universe, which have existed since the creation unbroken and unworn." The accepted conception of an atom was that of a passive thing; it had its own inherent shape and properties, which were impressed upon it at its creation. It had "the stamp of the manufactured article," as Sir John Herschell said, and throughout its endless history it responded to and behaved under the influence of external forces in due accordance with its shape and size. But it was unchangeable, inert and brute, the sport of its surroundings, like the mote in the sunbeam.

But to-day we stand amazed at such conceptions. We have learnt that within the atoms of matter there is a fund of energy so incalculably vast that the sum total of all the energies previously recognised, and now to be styled extra-atomic, is as nothing compared with it. This is a change indeed, that all the energies hitherto known to us should be merely the overflow trickling from the immeasurable ocean of the intra-atomic energy, the very existence of which has been formally and repeatedly denied by practically all thinkers from Plato down to our own time. Matter is not gross and inert, brute and dead. The atom, the so-called unchangeable foundation stone, is, on the contrary, itself an organism, the theatre of Titanic forces about which we at present know practically nothing except that they certainly exist, and are powerful beyond all our previous conceptions. The atom is no atom, but a microcosm; it is no more the unit of inorganic matter than the cell is really the unit of living matter.

Immeasurable Ocean of Energy

Now it is surely evident on consideration, though the significance of the change has been ignored, that the whole discussion of the spontaneous origin or evolution of life in matter takes an entirely new shape when our old and widely erroneous conception of matter is abandoned, and a true one is substituted. Life is a marvellous and characteristic demonstration of energy. When the origin of this energy in matter was formerly discussed, we were told that the constituent parts of matter contain no

energy at all, but now we know that a quite overwhelming proportion of the sum total of universal energy is to be found there, and nowhere else. This is one of the most revolutionary advances in the whole history of thought, and its full significance has yet to be recognised.

There must also be added an essential to any future discussion of this question, the extraordinary achievement of synthetic chemistry, of which Professor Berthelot was the grand master. As long ago as 1828 it was shown that there was at least one exception to the doctrine of the vitalists, that chemical compounds characteristic of living matter cannot be built up except by the living organism. To-day chemistry has succeeded in building up alcohols, starches, sugars, and even the forerunners of the proteids themselves, from the inorganic elements in the laboratory, under the action of non-vital forces. This fact could not be reckoned with a generation ago.

We are now entitled to state very briefly the sequence of events which may reasonably be imagined as culminating in the origin of life upon the earth *for the first time*. Whatever we may hold as to the present, we have to recognise that the origin of life for the first time constituted a fact utterly different in certain essentials from any origin of life that may be expected to be occurring to-day. The capital fact is that in the beginning there was no organic matter to serve as food material. If ever there was a case in which it is the first step that costs, it is here. Nothing can be easier than to imagine the spontaneous origin of life in organic matter to-day, favoured with sun and water and air. The case is far different when a primary origin in inorganic matter has to be conceived. But of some things we are certain. We are certain, for instance, that so long as the earth's surface temperature was above that of boiling water, no life was possible. It was not until the gaseous water in the atmosphere became liquefied by the lowering of the earth's temperature that the production of life became possible. The first seas were seas of boiling water, or rather water infinitesimally. below the boiling point, and we may reasonably suppose, with Buffon, that the Polar seas, being the first to cool, must have provided the first "nest" for life upon the earth. I assume, of course, that this essay will be read in conjunction with that of Professor Sollas upon the formation of the earth [page 79], and that of Dr. Wallace upon the exquisite adaptation between life and the earth to-day [page 91].

Can Chemistry Build Up Life?

But how were those complex organic bodies formed, especially those vastly complex proteids with which all life whatsoever, as we know it, is invariably associated? Apart from the laboratories of the synthetic chemists of to-day, these compounds are always the products of pre-existing life, and yet without them there could be no pre-existing life.

The Study of Ferments

It is my belief that this most difficult question, which quite baffles us, will seem simple and straightforward in another generation, when science has devoted itself on a large scale to a study now in its very infancy—I mean the study of those curious bodies which chemists call ferments. The properties of ferments are shared both by the familiar ferments, such as trypsin and pepsin, and also by certain inorganic substances, such as the metal platinum. Now, though pepsin is a product of living cells, platinum is certainly not. Altogether apart from the living world there are substances which have powers of fermentation; and ferments do not act exclusively, as is erroneously supposed, in breaking down complex compounds, but also build them up from their constituents. The powers of a ferment, moreover, are, so far as we know, inexhaustible. All life whatever is exercised by ferments, and it is true that life, chemically considered, is "a series of fermentations." Now, there is quite recent evidence already which seems to show that certain ferments, acting in suitable material, have the power of reproducing themselves—that is to say, of converting that material into their like. These facts are highly suggestive, and it is difficult to refrain from suggesting that the gap between living and lifeless matter, which seemed so absolute to our ancestors, and which even to us, who have a new conception of matter, seems wide enough, may yet be bridged by the ferments. We are far too apt, I think, to assume that when we can see no intermediate stage there were no intermediate stages, and thus to make difficulties for ourselves. We declare that life began as a single cell, which was the starting-point of organic evolution.

Mystery of the Cell

I myself believe rather that the cell constitutes the acme of a vast epoch of evolution, which may yet be reproduced in brief in the laboratory. Denying or declining to think of this, the biologist who knows the amazing complexity and intricacy of the architecture of the cell may well decline to believe that such a thing could spring with a single jump from inorganic matter. We preach and go on preaching that Nature does nothing by jumps, and in the same breath we declare that life began as a simple cell. In another hundred years we may begin to realise that a cell in its own measure and on its own scale is an organism, as complex and mature a product of evolution as a society, or, for the matter of that, as the atom of modern chemistry!

Is the Cell a Product of Evolution?

But the reader will legitimately declare that so long as the spontaneous generation of life to-day in the most favourable circumstances is a proved impossibility, he cannot be expected to accept the doctrine of its spontaneous origin in the past. There are signs, however, that the biologists are now beginning to listen to Dr. Charlton Bastian, the sole survivor from the great controversy of the 'seventies, whose book, "The Evolution of Life," was published only a few months ago. Against Pasteur and Tyndall and Huxley, Dr. Bastian maintained that their experiments, asserted to be conclusive, were not conclusive—the facts observed were certainly facts, but the deductions were unwarrantable. The experiments only proved the impossibility under the experimental conditions. The difference is the difference between proving what you set out to prove, and begging the whole question. First establish conditions under which spontaneous generation is impossible, then demonstrate its non-occurrence under those conditions, and thence infer that it is impossible under any conditions.

The Creed of the Future

The student is right in declining to believe in the spontaneous beginning of life upon the earth so long as the possibility of spontaneous generation to-day is denied, but there are not a few who think that the most conservative attitude that can be adopted is one of suspended judgment.

The present philosophic tendency is undoubtedly in the direction of a return to the ancient conception that matter is not without its own degree of life, and that the distinction between the organic and the inorganic is a distinction of degree and not radical. Nature does not admit of being sorted into any of our puny categories. As the facts accumulate they point more and more definitely towards the opinion that hylozoism, or the doctrine of potential life in all matter, will be part of the scientific creed of the future.

Controversies as to the origin of life, judged in the light of this great conception, seem to become trivial if not puerile. Knowing, as we now do, that Plato's conception of matter was as false as it possibly could be, and having had revealed to us by radio-activity the omnipresence within the very atoms of matter, of forces incessant and stupendous, we find the doctrine of vitalism, however stated, to be wholly meaningless; we find that the gap between the living and the lifeless is by no means abysmal or impassable.

And the definition of life as self-movement seems to become almost comical, for on that definition surely the whole physical universe, the only perpetual motion machine we know of, is itself alive. A discussion of this question can at the utmost only be suggestive. Very few positive assertions have been made, nor can their number be added to, in reference to a question which is bound to be asked: How long has life existed on the earth? The study of radium and its presence in the earth's crust alone suffices to abolish altogether the old estimates, and new ones cannot yet be substituted. Only it is certain that the past history of planetary life may be far longer than any previous estimate has indicated. It now seems that the earth is not only not self-cooling, but actually self-heating, and if on the older assumption Lord Kelvin could talk of a hundred million years since, so to speak, water first became wet, and life, as we know it, possible, who shall say of how long periods we may speculate now? Meanwhile, the glass-eyed stare vacantly around them and declare that the progress of science means the destruction of the spirit of wonder and reverence. To them we reply in the words of the Earth Spirit in Goethe's "Faust":

How Long Has Life Existed?

"At the whirring loom of Time unawed,
I weave the living garment of God."

C. W. SALEEBY

THE MASTERY OF THE EARTH

AND HOW MAN OBTAINED IT

BY DR. ARCHDALL REID

ALL the world—at any rate, all that part of the world which is acquainted with the facts—is now agreed that man is a product of evolution, and that his remote ancestors were of different bodily make and shape, and of different mental type and calibre, from their late descendants. No study of human kind can be comprehensive that does not include a survey of the mode by which the faculties that have given man the mastery of the earth were evolved.

A history of his evolution, based, like a political history, on episodes, cannot, of course, be written. But man is a bundle of parts and capabilities. By comparing the civilised being with the savage and the savage with lower animals, we are able to trace, in many important particulars at least, his natural history with a degree of certainty to which, I think, no political history can aspire. As our comprehension of adult man is helped by a knowledge of the development of the child, so our understanding of our species is aided by a study of its past. Armed with some clear conceptions of what man was, and is, we shall be the better fitted to investigate social and political change, and to perceive how it happens that while some nations have inherited the earth and the fruits thereof, others have stagnated or fallen into decay.

We Know the Present by the Past

At a certain stage in his development the caterpillar builds himself a cocoon. His dwelling is a wonderful structure, but from our human point of view the remarkable thing is that he does not learn to build it. He may never have seen a cocoon before, and he constructs only one in his life. Yet his work is perfect, or at least very excellent, and it is as good in its beginnings as in its endings. Evidently he owes nothing to experience, but is impelled and guided throughout by a faculty which we term *instinct*. An instinct may be defined as an innate, inherited impulse, an inclination to do a certain definite act, the instinctive act, on receipt of a certain definite stimulus or incitement to action. In the case of the caterpillar the stimulus appears to be the sight at the proper time of a suitable spot in which to build a cocoon. Since this particular impulse does not appear at the beginning of conscious life, it is termed a deferred instinct. Man, on the other hand, cannot build his house unless he first learns how to build. He depends, not on instinct, but on experience. The faculty by means of which experience is stored in the mind is *memory*. The faculty by means of which we use stored experience to guide present or future conduct is *intelligence*. When the contents of memory are very vast, and the processes of thought by which they are utilised comparatively difficult and complex, intelligence is termed *reason*. Intelligence and reason depend, therefore, on memory, on ability to learn, on capacity to profit by experience. Memory is not the whole of intelligence, but it is the basis of it. Without memory there could be feeling and emotion, but no thought, for the materials of thought would be lacking.

How Man Learns by Experience

We always measure the intelligence of an animal by its power of profiting by experience. Thus, a cat is more intelligent than a rabbit because it can learn more; a dog, for the same reason, is still more intelligent. A purely instinctive animal, one that has no memory, can have no conception of its past, and therefore no idea of its future. It lives wholly in the immediate present; feeling, but not thinking. It acts entirely on inclination, not on reflection. It makes provision for the future, not with any notion of providing, but simply because it has an impulse to a certain course of action, the performance of which gives it pleasure of the kind a child derives from playing or eating, and with the ultimate result of which it is no more consciously concerned than a child. If a caterpillar sheltered in a hole with the idea, founded on past experience,

Instinct in Place of Memory

of avoiding danger, his action would be intelligent. If, appealing to a memory in which a great number of complex experiences were stored, he took thought and designed himself a shelter in which provision was made for all sorts of *remembered* dangers, his action would be rational. But if, making no appeal to the past nor taking thought for the future, he builds only because impelled by an innate impulse, then, no matter how elaborate the edifice he rears, his action is instinctive.

The Basis of Rational Action

Animals low in the scale of life—for example, most insects—appear incapable of learning. But often they are wonderfully equipped by instinct. The details of the behaviour of a small beetle, as quoted from Professor Lloyd Morgan, may not have been quite correctly ascertained, but they are sufficiently accurate for our purpose.

A certain beetle (Sitaris) lays its eggs at the entrance of the galleries excavated by a kind of bee (Anthophora), each gallery leading to a cell. The young larvæ are hatched as active little insects, with six legs, two long antennæ, and four eyes, very different from the larvæ of other beetles. They emerge from the egg in the autumn, and remain in a sluggish condition till the spring. At that time (in April) the drones of the bee emerge from the pupæ, and as they pass out through the gallery the Sitaris larvæ fasten upon them. There they remain till the nuptial flight of the Anthophora, when the larva passes from the male to the female bee. Then again they wait their chance. The moment the bee lays an egg, the Sitaris larva springs upon it. Even while the poor mother is carefully fastening up her cell, her mortal enemy is beginning to devour her offspring, for the egg of the Anthophora serves not only as a raft, but as a repast. The honey, which is enough for either, would be too little for both, and the Sitaris, therefore, at its first meal, relieves itself from its only rival. After eight days the egg is consumed, and on the empty shell the Sitaris undergoes its first transformation, and makes its appearance in a very different form. . . . It changes into a white, fleshy grub, so organised as to float on the surface of the honey, with the mouth beneath and the spiracles above the surface. . . . In this state it remains until the honey is consumed, and, after some further metamorphoses, develops into a perfect beetle in August.

The beetle has sense organs; therefore she feels. But we have no reason to suppose that she remembers or thinks. Memory would be of little use to her; therefore parsimonious Nature bestows little or none. Cast adrift in a hostile world, she must come into existence ready armed by instinct for the battle of life. She has no time to learn, and during the rapid and strange changes in her career has little opportunity of acquiring knowledge that could beneficially guide her future conduct. Since memory and its corollary reflection are most developed in the highest animals, and are imperceptible in the lower, they are clearly later and higher products of evolution than instinct.

Wonderful Instinct of the Beetle

Family life is a product of memory, for the mate and offspring are *re*-cognised; therefore it always implies some degree of intelligence. The young are watched and protected, and taught by the higher animals. Opportunities are thus afforded of learning about the world, and more particularly of acquiring the traditions, the stored experiences, of the race. With the opportunity to profit by experience comes the ability to profit by it, and with the latter a gradual decay of instinct. Intelligence is substituted, more or less, for unthinking impulse. All the instincts are not lost, but in the higher animals we find no such elaborate innate impulses as in the lower. "Sitaris" is able to fend for herself from the first; but just in proportion as animals are highly placed in the scale of life, so they are helpless at the beginnings of consciousness, but correspondingly capable later. A young pig can run as soon as it is born, but the acquirements of the most learned pig are small compared to that of a dog, which, though more helpless than the pig at birth, is so teachable that he becomes the companion of man. Our domestic animals are all teachable, otherwise we could not tame them.

Man's Helplessness at Birth

Of living beings man is by far the most helpless at birth. He cannot even seek the breast. In him instinct is at its minimum. For him more than any other animal prolonged and elaborate tuition is necessary; but so vast is his memory, and so great his power of utilising its stored experience, that in later life he is beyond comparison the most capable of the inhabitants of the earth. Compare what even a dull man knows, including the words of a language and its inflections and articulations, with what is acquired by the cleverest dog, and the immensity of the difference is at once apparent. We may take a solitary frog and rear him from the egg in an aquarium. If, subsequently, we remove him to a pond, he

will take his place with his fellows at once. He has little, if anything, to learn. Instinctively he knows his food, and how to seek it; his enemies and rivals, and how to escape or fight them; his mate, and how to deal with her; and she knows how to dispose of her eggs. But how forlorn and helpless would be a man reared from infancy in a dark cell out of sight and sound of his kind, and then turned into a world where his *experienced* fellows struggle for existence!

Traditional knowledge—knowledge, that is, imparted by one generation to the next—is common enough amongst the higher of the lower animals, and forms no inconsiderable part of their mental equipment. Thus we may see the hen teaching her chickens how to seek food, and the cat instructing her kitten how to ambush mice. Birds and mammals inhabiting desert islands have none of that fear of man which in our country they acquire from dire experience. We have a saying, "as wild as a hawk"; but Darwin relates how he almost pushed a hawk from its perch with his gun in the Galapagos Islands. Round our coasts the sea-birds are exceedingly shy; in a harbor they feed from the hand. Formerly the Arctic seals, impelled by fear of bears, inhabited the outer margin of the floes; at the present day they have retreated from the more dangerous neighbourhood of man to the landward edge. Antarctic seals, harried by the great carnivora of the ocean, are watchful in the water; on land or on the surface of the ice, where till lately they met no danger, they may be slaughtered like sheep in a shambles. They are capable of profiting by experience; but they are slow to learn, and can acquire but little. Judged by our human standard, they are very stupid. The means of escape adopted by Arctic seals, and the means of capturing them, the ships and guns adopted by man, furnish a measure of the intellectual difference.

Fear is the Result of Experience

When animals are social, and so have the opportunity of learning, not only from their parents, but from other members of the species, the power of making useful mental acquirements is correspondingly great. It reaches a remarkable degree of development even amongst insects, some species of which live together in great communities. Young ants, for example, are tended with anxious care. It is said that they are led about the nest and instructed by older individuals. They are reported to be playful. Most significant of all is the fact that some species have the habit of capturing slaves belonging to other species, which they take as pupæ, never as adult ants, and to whom, as they develop, they teach their duties. The slaves are neuter individuals, and have no offspring, the supply being maintained by fresh captures. It follows that the slaves must *learn* their work, and therefore that their performance of it is not instinctive, but intelligent.

Slavery in the World of Insects

It is a fair inference that many of the so-called instincts of ants are really acquired habits, bits of knowledge and ways of thinking and acting which are handed down from one generation to the next, not by actual inheritance, but traditionally and educationally, just as children receive from us language, or religion, or a trade. Indeed, there is reason to believe that the power of making mental acquirements has evolved to a greater degree in the favourable environment of the ant-nest than among any other species except man.

The instincts of man, though comparatively few and simple, are yet essential to his existence. He has the instinct of hunger and the instinctive recognition of food as food, the instincts to sleep periodically, to rest when tired, and to sport when rested, the instincts of curiosity and imitativeness, and the deferred instincts of sexual and parental love, and perhaps one or two others. All these innate impulses he shares with the lower animals, but those which impel him to store and use his vaster memory are more developed in him than in any other type. Thus the instinct of sport urges him, not only to develop his limbs, but, through experience, to acquire dexterity and much besides. The little girl turns naturally to her doll, which she handles as she will her baby. The play of a boy as naturally involves contests, which foreshadow the grimmer battles of adult life. As he grows older the character of his sport changes. More and more it becomes an appeal to the wits, an appeal to wider experience and a means of adding to it.

Man's Essential Instincts

The higher amongst the lower animals also have their sports, which, in every instance, are adapted to fit the members

of the species for the future business of life. Compare, for example, the ambush and pounce of the kitten, the ardent chase and overthrow of the puppy, and the climbing proclivities of the kid. As a general rule, in proportion as an animal is capable of becoming intelligent, and as long as it is so capable, it is inclined to sport. A cat loses the desire early in life, a man retains it to the end. A child's play, therefore, is no indication of mere frivolity. It is the outward and visible sign of an eager and splendidly directed mental activity. Curiosity also prompts the child to store its memory. Imitativeness impels him to acquire those mental traits which enabled his progenitors to survive in their world. Parental love prompts to the care and instruction of offspring. Very illuminating and beautiful is the instinctive delight of some dull and careworn mother in babyish play with her infant, and her joy when it first "takes notice," and in its earliest beginnings of speech and locomotion.

A Child's Play Fits it for the Future

Every animal species is fitted by its structures and their associated faculties to its particular place in Nature. In some cases it holds its own largely through the evolution of some one structure or group of structures. Thus, the bat is especially distinguished by the great development of its fingers and of the web between them, and the elephant by its trunk. The principal distinguishing physical peculiarity of man is the enormous relative size in him of that upper part of the vertebrate brain which is termed the cerebrum, and, we have every reason to believe, constitutes the organ of memory and thought.

Associated in a special way with his great brain are his organs of speech and manipulation. These three structures, the brain, the vocal apparatus, and the hand, undoubtedly underwent concurrent evolution by the constant survival, during a period of intense competition, of those individuals who were naturally the best capable of receiving and storing experience, of using it for the intelligent manipulation of objects, and of communicating it to their fellows and descendants through the medium of speech. Even the highest of the lower animals are able to learn from one another only by example or through such very elementary verbal signs as calls, growls, or cries of alarm, which express no more than simple emotions.

Evolution of Man's Powers

Their traditional knowledge, therefore, is as nothing compared with that of man, who by means of articulated speech communicates not only information concerning sense impressions and emotions, but complex items of knowledge and processes of thought which have been garnered, elaborated, and systematised during tens of thousands of years by millions of predecessors. Without speech, or some such method of communicating abstruse information, his great brain would be useless. But knowledge and powers of thought are of no avail unless they can be translated into action; and for this the hands are necessary. To set free the fore limbs, which had hitherto been organs of locomotion, for their new function of manipulation, man became a biped, and assumed the erect posture—by no conscious effort, however, but solely by the survival of the fittest in each generation.

Savage man, then, differs from the lower animals in that he has a larger brain, a more capacious memory, and greater powers of utilising and communicating its contents. Modern man differs from ancient man because he is the heir of longer experience. Civilised man differs from the savage chiefly in that he has invented and more or less perfected certain artificial aids to speech, written symbols by means of which he is able to store in an available form knowledge immensely more abstruse and voluminous than would otherwise be possible. His books are artificial memories and vehicles of communication of unlimited capacity and unerring accuracy. Moreover, by means of these symbols he is able, as in the mathematics, to perform feats of thinking quite beyond the powers of his unaided mind; just as by means of machinery and other mechanical contrivances he is able to perform physical feats beyond the unaided powers of his body.

Man Paves His Way to Greatness

To memory, then, is due the advance of the savage beyond the lower animal; to tradition, the child of memory, the advance of modern man beyond ancient man; to tradition stored in books the advance of civilised men beyond the savage. To written symbols are due also man's vast powers for future advance. The brute, the mammoth, the mastodon, the whale, the elephant, and the tiger, became ever

more and more helpless in the presence of a knowledge and an ingenuity that gathered with the rolling years, and, though accumulated for ages, were yet relatively new things in this enormously old world.

Low animals, in proportion as they lack memory, move in a narrow, instinctive groove. Their mental traits are all inherited, and therefore each individual follows exactly in the footsteps of its predecessor. Since they cannot learn, they cannot adapt themselves to circumstances. Removed from the ancestral environment they perish. Cast in a rigid, inexpansive mould, every individual resembles every other of the same species, as much mentally as physically.

It is different with man. He is preeminently the educable, the reflective, the adaptive animal. Since the experiences of no two men are quite similar, they differ in knowledge, ideas, and aspirations, and, therefore, none are very closely alike mentally. The child does not follow exactly in the footsteps of the parent. So great is human adaptability that, though the mind of the savage differs immensely in all except instinct and power of learning from that of the civilised man, yet, were the child of the latter trained from birth by the former, he could not be other than a savage.

Man can Revert to Savagery

On the other hand, utter savages—for example, the Maories of New Zealand—have passed in a single generation from barbarism to civilisation. The average individual amongst us may be trained to fill the rôle of a beggar or a king, a scientist or a monk, a thief or a legislator. He is able to dwell in the Tropics or in the Arctic, in the town or in the wild. Memory, knowledge, intelligence, adaptability, are all links in a single chain of efficiency.

Memory is of two sorts, conscious and unconscious. The conscious memory contains experiences which can be recollected, such as the words of a language or the sights we have seen. The unconscious memory contains impressions which cannot be recalled to mind, but which are none the less important. Thus, we learn to use our limbs, a process which involves a precise but quite unconscious adjustment of the actions of numerous nerves and muscles, the very names and existences of which are known only to the anatomist. So, also, in youth we unconsciously imitate our fellows, adopting in great measure their mental tones and attitudes without knowing how or when we were influenced. Much, too, that was once capable of being recalled is added to that hidden store, and, though apparently lost, remains potent for good or evil. Our minds are like floating icebergs, of which the visible part is but a fraction of the whole, and are moved by deep currents in a seemingly unaccountable way.

Dawn of Human Life

At birth the mind of a child, unlike that of a beetle, is practically blank. Sights and sounds and the other feelings convey no meanings to it. But soon the messages sent by the sensation are understood. In a few weeks the child evolves order out of chaos, and comprehends to a wonderful degree the world around it. It learns to move its muscles in a purposeful way, and in a year or two is able to walk and speak a language, and do a vast deal more besides. In these early years, the period of man's greatest mental activity, are made his most valuable and indispensable acquirements. But as he becomes more and more completely equipped for the battle of life, his powers of adding to the store slowly decline. In adult life the gains are balanced by the losses. In old age the losses exceed the gains. Compare the perfection with which the young acquire the manners of society, and every accent, inflection, and intonation of a language, with the imperfections displayed when learning is undertaken later.

We learn to do new things, acquire new knowledge, and think new thoughts with toil. But practice brings facility. In the end we perform with ease that which was acquired with difficulty. We cannot, however, unlearn as we learnt, by an act of will. The facility lingers, and, as a consequence, our actions and thoughts, our mental attitudes, our whole outlook on life becomes more or less automatic and stereotyped. In other words, our acquirements come at last to resemble instincts, and are often so misnamed, as when a boy who has learned to dodge is said to avoid a blow instinctively. A being from another planet who for the first time saw a man walking or cycling could not distinguish the nature of these acquirements from such instinctive movements as the running or flying of an insect. The patriotism of a Spartan or a Japanese differs from that of

Habits are Imitation Instincts

a bee only in its mode of origin. In brief, the low animal is a creature of instincts, the man is a creature of habits, which are nothing other than imitation instincts.

Mankind's Substitutes for Instinct

A principal function, then, of our faculty of making mental acquirements, of our conscious and unconscious memories, is to supply us with those automatic ways of thinking and acting which are our substitutes for instincts. Our conscious memories supply us with our stereotyped mental attitudes—desires, beliefs, aspirations, habitual way of thinking, and so forth. Our unconscious memories supply our stereotyped ways of acting—the automatic ways of acting we have just considered. It is a principal business of our lives to acquire them; but, though a great advantage is thus gained, one almost as great is lost. We act and think more quickly in familiar situations, but in proportion as we grow older we lose our splendid human capacity for learning. Beyond the verge of our imitation instincts spreads a domain, very wide in the infant, but narrowing as we pass towards old age, which is the real realm of the active intellect. Here, where thoughts and actions are not yet stereotyped, memory gathers fresh harvests, imagination plays, and reason ponders. Here man is a rational being in the strict sense of the word.

Mind and Memory

A little thought renders it evident that a feeble-minded person, an idiot, or an imbecile, is always one with a defective memory. He is unable to profit like the normal individual from experience. The truth that the higher faculties are more often absent in the feeble-minded than the lower is due entirely to the fact that they can be acquired only by people whose receptive powers are well developed. In effect and in fact the feeble-minded person is an instance of reversion to a prehuman mental state. Judged by the human standard, every monkey is an idiot. But the reversion is not complete, for, though the imbecile loses some part of his power of profiting by experience, he regains no part of the lost power of being guided by instinct. Therefore he is correspondingly helpless as compared with a lower animal.

Owing to the constitution of the human mind, some decay of the faculty of profiting by experience accompanies advancing age. But it need seldom be so great as it usually is, and never so great as it often is. Certain mental attitudes, certain systems of education, certain environments, leave the mind of the man almost as open as that of a little child; others inflict on it premature senility. An Aristotle or a Darwin learns to the last year of his long life; a Mohammedan or a Tibetan ecclesiastic is old before he has ceased to be young. Convinced that pestilence is due directly to the wrath of God, he scorns the notion that sanitation can be right or useful; believing that the earth is flat, no evidence will convince him that it is round; holding his sacred religion with a steadfast faith, he will murder the heretic rather than think out his propositions.

How the Minds of Men Differ

But habits of stupidity are not confined to particular regions of thought. Becoming almost as incapable of mental change as a beetle, a man may undergo an arrest of mental development which differs from that of the idiot only because it occurs later in life, is less complete, and is acquired, not innate. In his ordinary surroundings he appears a normal person; but placed among people of more open mind, his brute-like inability to learn suggests sharply the resemblance to the feeble-minded child. Let us sum up. Man has conquered the earth because he is pre-eminently the educable, the adaptive animal. His educability—indeed, his whole thinking capacity—depends on his memory. He has few instincts, a fact which increases his mental ductility; but one of the most important of his instincts is imitativeness, which impels him to copy not only such obvious things as the speech of his predecessors, but their mental attitudes as well. In this way not only the actual knowledge and beliefs but also the habits of thought of one generation are handed on to the next. Apart from a few instincts which are more active in the child than in the adult, and two or three others whose appearance is deferred till later life, the whole mental difference between the child and the adult lies in the fact that the former has a great memory in the sense that it is very capable of storing experience, whereas the latter has a great memory in the sense that it has already stored much experience. As parent to child, so one racial generation hands on its acquirements to the next, but with greater certainty; for the parent is not the only influence in the life of the child,

who imitates many other people, sometimes more closely than the parent; whereas, since few individuals travel during youth, the young are seldom influenced by others than by members of their own race. Except in times of great change, therefore, racial generations resemble one another even more closely than parents and children.

Like individuals, races differ in their mental characteristics. The English have one set of characters, the Japanese another, and the Russians a third. The problem of the extent to which these characters are inborn or acquired is very important to the student of history. Accordingly as we believe they are the one or the other we are driven to accept one or other of two very different readings of the past.

Are races, then, brave or cowardly, energetic or slothful, enlightened or savage, and so forth, by nature or by training? Are the qualities that have enabled some races to flourish, while others are decadent, transmitted as instincts or handed on, as knowledge is? The reader has now materials of a kind not usually found in historical works on which to found a judgment. He must bear in mind that, while an American infant reared by cannibals would retain the bodily characteristics of his race mentally, he could not be other than a savage. He must remember also that some races have altered their mental characteristics very rapidly. Thus, in the fifteenth and sixteenth centuries, immediately after the long Dark Ages, the British and several other European races suddenly became intellectually active and socially progressive. The Japanese supply a more modern, the Greeks and Romans more ancient, instances. The latter quite as suddenly sank into abysmal degradation. Innate mental characters, such as the instincts, usually change so slowly that not merely historical but geological time elapses before the alteration is perceptible. Again, the reader must note that, while the *opinion* that racial traits are inborn is nearly universal, most men *act* as if they knew them to be acquired; for nearly all men are careful in training their children, especially with respect to those traits that contribute to the formation of character.

Influences in a Child's Life

Doubtless, races of men differ innately in mind as they do in body, but these differences can occur only within narrow limits. The instincts of all races are, of course, very similar, for all the instincts are essential to the preservation of life. But races may differ in strength of instinct, and more especially in powers of memory. Thus it is possible, or probable, that the English, for example, are more capable of profiting by experience than Australian blacks. Certainly, their brains are larger. On the other hand, the brain grows under the stimulus of use, and therefore the larger size of the English brain may be due to more arduous labour.

Great Facts to Remember

Lastly, the reader must ask himself the question: What mental effects have centuries of freedom or slavery, or of civilisation, or of barbarism, on races? Do they produce innate changes, or do they merely render certain acquirements so nearly universal that their perpetuation by imitation is insured? If he supposes that the changes are innate, he must ask himself the additional question whether they arose through the transmission of parental acquirements to offspring, or through the actual and constant destruction in certain environments of certain definite types of individuals who were thus prevented from leaving offspring and so perpetuating their like. The former hypothesis is now generally repudiated by science. The latter may be true, but as yet has not been supported by evidence; or at any rate is supported only by such evidence as that which Mill and Buckle denounced. In either case, though history may furnish him with intellectual occupation, it will supply few lessons of practical value. If, on the other hand, he has perceived the greatness of the part played in the human mind by acquirement, if he has noted that man is man, a thinking and rational being, the conqueror of the earth, only because he is the most impressionable and therefore the most adaptable of living types, the reader will learn from the racial see-saw of the past what kinds of mental training have conduced to success and happiness and what to ruin, and so perhaps he may find himself in a position to help the fortunes of his people and his children. The real value of history, as in the last analysis of all experience, lies in its educational applications.

The Real Value of History

G. Archdall Reid



PREHISTORIC MEN ATTACKING THE GREAT CAVE BEARS

THE RISE OF MAN AND THE EVE OF HISTORY



THE WORLD BEFORE HISTORY

By Professor Johannes Ranke

THE WONDERFUL STORY OF DRIFT MAN

THE history of the world is the history of the human mind. The oldest documents affording us knowledge of it lie buried in those most mighty and comprehensive historical archives, the geological strata of our planet. Natural philosophy has learned to read these stained, crumpled, and much-torn pages that record the habitation of the earth by living beings; but only a few sections of this book of the universe have yet been perused, and these appear but fragmentary in comparison with the whole task. The passages that relate to the human race are small in number and often even ambiguous, and it is only the last pages that can give an account of it.

Nature's Great Book of History

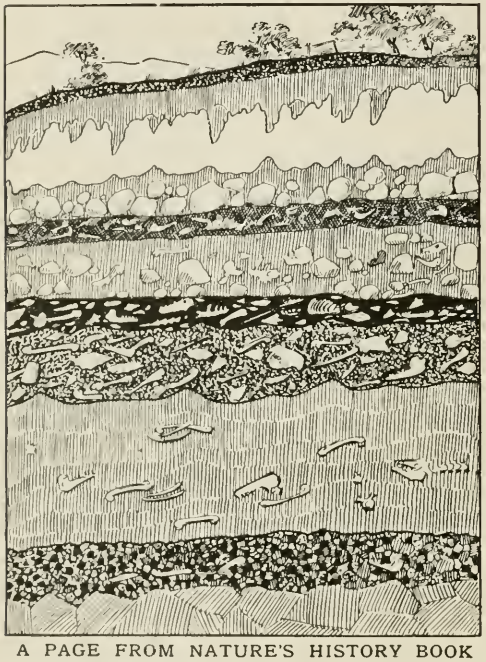
The oldest undisputed traces of the presence of man on the earth that have hitherto been discovered are met with in the strata of the Drift Epoch, and it is only during the last generation that the existence of "Drift Man" has been palæontologically proved beyond dispute. The late Sir J. Prestwick believed, however—and his results have been confirmed by later discoveries—in the existence of evidence of the presence of man in Western Europe before the present river system of our land was established, long before the age of the "Drift" relics. The evidence consists of rudely shaped pieces of flint, apparently artificially chipped along one or more edges. These supposed implements are termed "Eoliths." They were first discovered by Mr. Benjamin Harrison in the high-level plateau, probably of the Upper Pliocene Age, in Kent, and their significance is now widely accepted.

Up to the middle of last century research appeared to have established as a positive fact that man could not be traced back to the older geological strata; remains of man were said to be found only in the newest stratum of the earth's formation—in the alluvial, or "recent" stratum. The bones of man were accordingly claimed to be sure guides to the geological formations of the present time, as the bones of the mammoth and cave-bear were to the strata of the Drift. Where traces of man were found it was considered as proved by natural science that the particular stratum in which they occurred was to be allotted to the most recent system, which we see forming and being transformed under our eyes at the present day.

While it was declared that man belonged to the alluvial stratum, it was at the same time stated, according to the doctrine of Cuvier, which had the weight of a dogma, that man could not have belonged to an older geological stratum or era, and therefore not even to the next older one, the Drift. The beginning and the end of geological eras are marked by mighty transformations which have caused a local interruption in the formation of the strata of the earth's surface. In many cases we can point to volcanic eruptions as the chief causes, but more especially to a

The Theory of Natural Catastrophes

change in the distribution of land and water. Cuvier had conceived these changes involving the transformation to have been violent terrestrial revolutions, the collapse of all existing things, in which all living beings belonging to the past epoch must have been annihilated. It appeared impossible that a living thing could have survived this hypothetical battle of the elements, and passed from an older epoch into the next one ; and the new epoch was supposed to have received plants and animals by re-creation. All this had to be applied to man also ; he was supposed to



A PAGE FROM NATURE'S HISTORY BOOK
It is in the successive layers of the earth's strata with their human and animal remains that we read the story of the past. Embedded in the earth itself we have the existence of "Drift Man" established. Our illustration is that of a section of the famous Kent's Cavern, near Torquay, which is rich in prehistoric remains.

have come into existence only in the alluvial period. Not without consideration for the Mosaic account of the Creation, which, like the creation legends of numerous peoples scattered far and wide over all the continents of the earth, tells of a great deluge at the beginning of the present age, the Pleistocene Epoch of the earth's formation preceding the present period had been termed the Flood Epoch, or Diluvium. In its stratifications it was thought that the effects of great deluges could largely be recognised ; but the human eye could not have beheld these, for, according to the catastrophe theory, it appeared out of the question that man could have been "witness of the Flood."

Here modern research in the primeval history or palæontology of mankind begins, starting from the complete transformation of the doctrine of the geological epochs brought about by Lyell and his school.

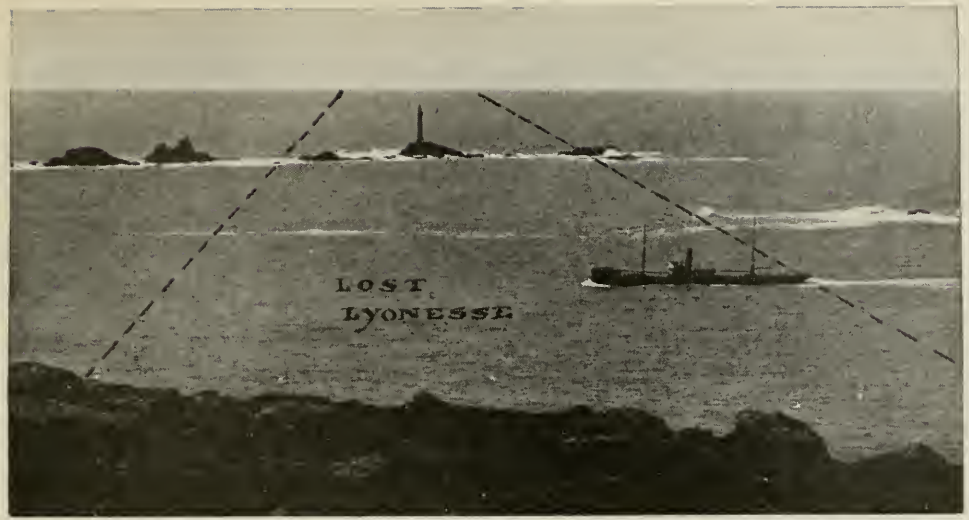
What Actually Happened

Proofs of terrestrial revolutions, as local phenomena and epoch marks, are doubtless to be found, imposing enough to make the views of the older school appear intelligible ; but, generally speaking, a complete interruption of the existing conditions did not take place between the periods. Everything tends to prove that even in the earlier eras the transformation of the earth's surface went on in practically the same way as we see it going on before our eyes to-day in a degree that is slight only to appearance. The effects of volcanic action ; the rising and sinking of continents and islands, and the alteration in the distribution of sea and land caused thereby ; the inroads of the sea and its work in the destruction of coasts ; the formation of deltas and the overflowing of rivers ; the action of glaciers and torrents in the mountains, and so forth, are constantly working, more or less, at the transformation of the earth's surface.

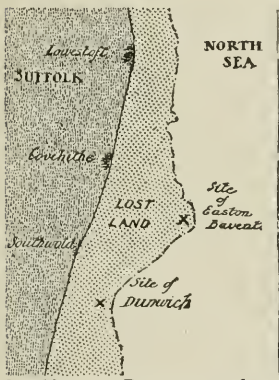
As we see these newest alluvial deposits being formed, so in principle have the strata of the earlier eras also been formed, and their miles of thickness prove, not the violence of extreme and sudden catastrophes, but only the length of time that was necessary to remove such mighty masses here and pile them up there. It was not sudden general revolutions of great violence, but the slowly working forces, small only to appearance, well known from our present-day surroundings, which destroy in one place and build up again in another with the material obtained from the destruction—it was these

Nature's Unbroken Chain

which were the causes of the gradual transformation of the earth in all periods of its history comparable to the present. According to this new conception of geological processes, a general destruction of plants and animals at the end of eras, and a new creation at the beginning of the following ones, was no longer a postulate of science as it had been. The living creatures of the earliest eras could now be claimed as ancestors of those



This indicates a vast stretch of the lost land of England, looking towards the Scilly Isles from Land's End. All between the broken lines was once land as far as Scilly, thirty miles away and fifty miles thence to Lizard Point.



In old maps Bavent was formerly the most easterly point of England; now that is Lowestoft.



The coast of England is being slowly worn away by the sea. In many places houses have been swallowed up. Here we see the disintegrating process going on at Holderness, where the sea front presented this appearance after a gale.



SLOW INFLUENCES THAT DESTROY IN ONE PLACE AND BUILD UP IN ANOTHER

The coming of the sea over the land is so slow as to be almost imperceptible, but these pictures illustrate its progress. The pictures in the upper half of the page show how the sea is encroaching on the coast; the opposite result is shown in the bottom view from Reigate Hill, where we see an ancient arm of the sea now a rich and populous valley.

living to-day; the chain seems nowhere completely broken. The ancestors of the human race were also to be sought in the strata of the earlier geological periods.

Among the forces which we find attended by a transformation of the fauna and flora of the earth's eras, the influences of climatic changes in particular are clearly and surely shown. In that primeval period in which the coal group was formed the climate in widely different parts of the earth was comparatively equable, little divided into zones, and of a moist warmth; this is proved by the really gigantic masses of plant growth implied by the formation of many coal strata, in which the remains of a luxuriant cryptogamic flora are everywhere embedded. In Greenland, in the strata belonging to the chalk period, and even in the deposits of the Tertiary Period, which immediately precedes the Drift Era, the remains of higher dicotyledonous plants of tropical character are found. The occurrence of palæozoic coral reefs in high latitudes also goes to prove that the temperature of the sea water there was higher at that time: in fact, that a tropical climate existed in the farthest north—an extreme contrast to the present ice-sheet on its land and the icebergs of its seas.



EUROPE BEFORE THE BRITISH ISLES WERE FORMED

This map and section illustrate the coast line of Prehistoric Europe when the British Isles were part of the Continent and the North Sea did not exist. The black parts of the section were all above the level of the Atlantic.

In Central Europe the climatic conditions can have been only slightly different. During the middle Tertiary Period palms grew in Switzerland; and even at the end of the Tertiary Period, as it was slowly passing into the Drift Era, the climate in Central Europe was still warmer than now, being much like that of Northern Italy, and its protected west coast the Riviera. There was also a rich flora, partly evergreen, and a fauna adapted to such mild surroundings. Even in the oldest (Preglacial) strata, and again in the middle (Interglacial) strata of the Central European drift, there was still an abundant plant-growth requiring a temperate climate, at any rate not more severe than Central Europe possesses at the present day. Our chief forest trees grew even then—the pine, fir, larch, and yew, and also the oak, maple, birch, hazel, etc. On the other hand, Northern and Alpine forms are absent among the plants. The same holds good of the animal



THE SUBMERGED LANDS OF EUROPE

This map and section show how the Continental shelf of Europe runs out to the Atlantic, and how enormous is the area now submerged in the comparatively shallow water of the North Sea, the Irish Sea, and the Channel.

world, which was certainly much farther removed than the plant world from the conditions prevailing now. The gigantic forms—the elephant, rhinoceros, and hippopotamus—appear particularly strange to us, as also the large beasts of prey—the hyena, lion, etc. But besides these, and the giant deer with its powerful antlers, and two large bovine species—the bison and the urus—there were also the majority of the present wild animals of Central and Northern Europe that were originally natives—as the horse, stag, roe, wild boar, and beaver, with the smaller rodents and insectivora, and the wolf, fox, lynx, and bears, of which last the cave-bear was far larger than the present brown bear, and even than the Polar and grizzly bears.

We have sure proofs that through a decrease in the yearly temperature a glacial period set in over Europe, North Asia, and North America, burying vast areas under a sheet of ice, of the effect and extent of which Northern Greenland, with its ground-relief veiled in inland ice, can give us an idea.

The immediate consequence of this total climatic change was an essential change in the fauna. Forms that were not suited to the deteriorated climate, that could neither stand it nor adapt themselves to it, were first compelled to retire, and then were exterminated. This fate befell the hippopotamuses, and also one of the two elephant species, *Elephas antiquus*, with its dwarf breeds in Sicily and Malta, probably thus developed by this retreat; then the rhinoceros-like *Elasmotherium*, a species of beaver; the *Trogontherium*, and the powerful cat *Machairodus* or *Trucifelis*, which still lived in England, France, and Liguria during the Drift Period. Other animals, like the lion and hyena, withdrew to more southerly regions, not affected by the increasing cold and more remote from its effects.

On the other hand, according to Von Zittel's description, an immigration of cold-loving land animals took place, which at the present day live either in the Far North or on the wild Asiatic steppes, or in the high mountain ranges. These new immigrants mixed with the surviving forms

of the older drift fauna. The latter lived, as we have seen, by no means in a warm climate, but only in a temperate "northerly" one, even in the warmer periods of the epoch. So we can understand that many of this older animal community were well able to adapt themselves to colder climatic conditions, and among them two of the large Drift pachydermata, the elephant and rhinoceros, whose kin we now find only in the warmest climes. But a thick woolly coat made these two Drift animals well fitted to defy a raw climate—namely, the woolly-haired mammoth, *Elephas primigenius*, one of the two Drift species of elephants of Europe, and the woolly-haired rhinoceros, *Rhinoceros antiquitatis*. A second species of rhinoceros, *Rhinoceros merckii*, was also preserved, and maintained its region of distribution. The horse was now more largely distributed, and inhabited the plains in herds; but, above all, the reindeer immigrated along with other animals that now belong only to Far Northern and Arctic regions, and pastured in large herds at the edges of the glaciers. With the reindeer, although less frequent, was the musk-ox of the Far North, besides many other cold-loving species, such as the lemming, snow-mouse, glutton, ermine, and Arctic fox. Many of the animal forms that were very frequent then, in the Drift Period, appear now in Central Europe only as Alpine dwellers, living on the borders of eternal snow, such as the ibex, chamois, marmot, and Alpine hare.

The Older Drift Animals

Of special importance for our main question is the great invasion of Europe by Central Asiatic animals; immigrants direct from the Asiatic steppes pushed westward "as in a migration of nations," among them the wild ass, saiga antelope, bobac, Asiatic porcupine, zizel, jumping mouse, whistling hare, and musk shrew-mouse. According as the glaciers and inland ice grew or shrank, the animals of the glacial period advanced more or less far to the North or retired more to the South, extending or reducing their range of distribution. The Glacial Period was no invariable climatic phenomenon. It is perfectly certain that a first Glacial Period with a low yearly temperature, under the influence of which the ice-masses, with their moraines, advanced a long way from the North and from the high mountains, so that in Germany, for instance, only a comparatively narrow strip remained free and habitable for higher forms of life between the two opposing rivers of ice—was succeeded by at least one period of warmer climate, and that certainly not a short one. The mean yearly temperature had increased so much that the ice-masses melted to a considerable extent, and had to retire far to the North and into the high valleys of the Alps. In this warmer interglacial Period, as it is called, the Drift animals advanced far to the North, especially the mammoth, which, with the exception of the greater part of Scandinavia and Finland (districts which remained covered with ice during the Interglacial Period), is distributed throughout the drift strata of the whole of Europe and North Africa, and as far as Lake Baikal and the Caspian Sea in Northern Asia. Even the older Drift fauna, so far as it had not yet died out or retired, returned to its old habitats, so that the Interglacial fauna of Central Europe appear very similar to the Preglacial fauna.

The Animal Invasion of Europe

A long-sustained decrease of temperature led once more to the growth of the ice, which in this second Glacial Period almost reconquered the territory it had won at first.

The Change of the Ice Age Climate

In consequence of these oscillations in the climatic conditions of the Drift Era as a whole, we have to distinguish the Preglacial Era and the Interglacial Era, as warmer sub-periods of the Drift, from the real Glacial Periods. The latter appear as a first, or earlier, and a second, or later Glacial Period, as remains of which the zone of the older moraines and the zone of the later ones clearly mark the limits of the former glaciation.

It was this second deterioration of the climate, with the fresh advances made by the glaciers and masses of inland ice, which definitely did away with the older Drift fauna that was not equal to the sudden climatic change. Nor did the woolly-haired rhinoceros, the *Rhinoceros merckii*, and the cave-bear survive the climax of the new Glacial Period. Even the woolly-haired mammoth succumbed. It and the woolly-haired rhinoceros, accompanied by the musk-ox and bison, had made their way into the Far North of Asia. But while the two last species bore the inclemencies of the climate, the rhino-



Alpine Hares



The Chamois



The Ibex



The Marmot

Dando

TYPES OF ANIMALS SURVIVING IN CENTRAL EUROPE FROM THE DRIFT PERIOD

Many of the animal forms that were very frequent in the Drift Period appear now in Central Europe only as Alpine dwellers, living on the borders of eternal snow. Such are the ibex, chamois, marmot, and Alpine hare.

ceroses and elephants met their end here. And yet they had long preserved their lives on the borders of eternal ice. Whole carcases, both of the woolly-haired and Merckian rhinoceroses, and also of the woolly-haired mammoth, the bison, and the musk-ox, with skin and hair and well-preserved soft parts, have been discovered in the ice and frozen ground between the Yenisei and Lena, and on the New Siberian Islands at the mouth of the Lena. The carcases of the mammoth and rhinoceros found imbedded in the ice were covered with a coat of thick woolly hair and reddish-brown bristles ten inches long; about thirty pounds of hair from such a mammoth were placed in the St. Petersburg Natural History Museum. A mane hung from the animal's neck almost to its knees, and on its head was soft hair a yard long. The animals were therefore in this respect well equipped for enduring a cold climate. As regards their food they were also adapted to a cold climate, traces

of coniferæ and willows— that is, "Northern plants"—having been found in the hollows of the molar teeth of mammoths and rhinoceroses. The mammoth proves to have had greater resisting power, and to have been more fit for further migrations, than the rhinoceros. The latter's range of distribution extended over the whole of Northern and Temperate Europe, China and Central Asia, and Northern Asia and Siberia. But, as we have seen, the mammoth penetrated not only into North Africa, but, what is of the highest importance for the proper understanding of the settling of the New World, even into North America.

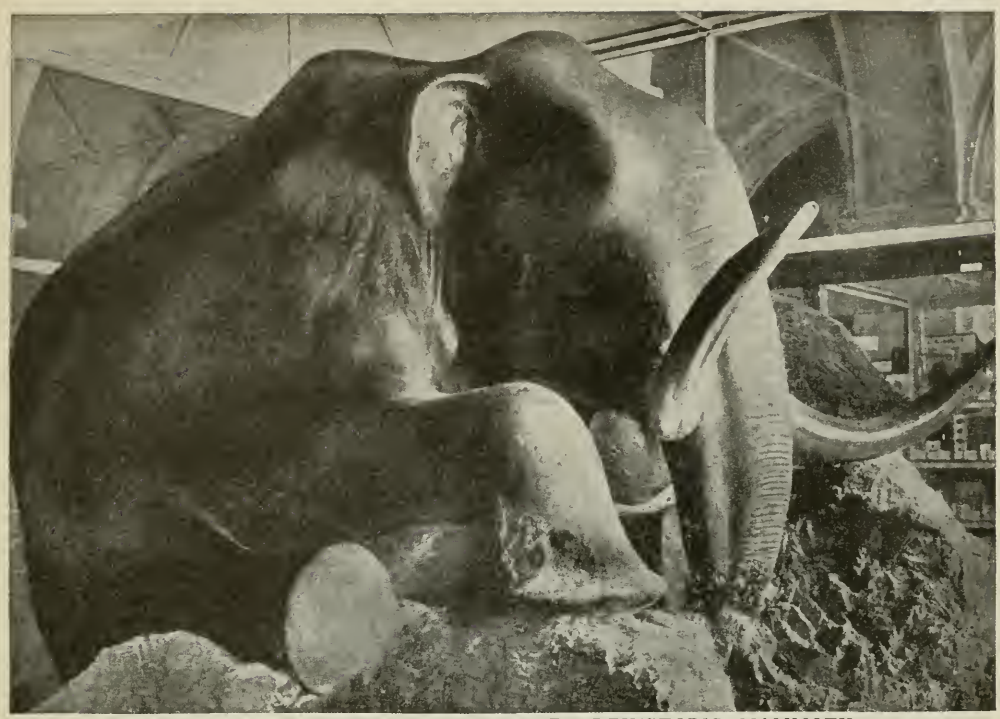
Breaking up of the Earth

The connection which in earlier geological periods had united Europe, Asia, Africa, and North America in the greatest homogeneous zoogeographical kingdom, the Arctogæa, was broken during the Tertiary and Drift Periods, so that several zoogeographical provinces were formed. The connection with North America was the first to be broken, so that even in the last two divisions of the Tertiary Period, the Miocene and Pliocene Epochs, the Old and the New Worlds stood in the relation of independent zoogeographical provinces to one another. Now, it is of the greatest importance to note that during the Drift Period North America again received some Northern immigrants from the Old World, according to Von Zittel "probably viâ Eastern Asia." Consequently, during the Drift Period communication existed, at least temporarily, between Asia and North America in the region of Bering Strait, sufficient to allow the mammoth and some companions to migrate from the one continent to the other. In Kotzebue Sound mammoth remains are found in the "ground-ice formation," together with those of the horse, elk, reindeer, musk-ox and bison. Mammoth remains are also known to have been found in the Bering Islands, St. George in the Pribylov group, and Unalaska, one of the Aleutian Islands. In that period the mammoth arrived in the New World as a colonist driven from the Old. It spread widely over British North America, Alaska, and Canada; it has also been found in Kentucky. A relatively recent union of the circumpolar regions of the Northern Hemisphere—of Europe, Asia, and North America—is also proved by the occurrence of animals that we recognise as companions of the mammoth, but which, surviving the Glacial Period, are still distributed over the whole region, such as the reindeer. elk, and bison. The absence in Asia of several animals specially characteristic of the European Drift (the hippopotamus, ibex, chamois, fallow-dear, wildcat, and cave-bear) explains also their absence in the North American Drift fauna. It is particularly strange that the cave-bear did not reach Northern Asia. It is otherwise the most frequent beast of prey of the Drift Period, and hundreds of its carcases often lie buried in the caves and clefts it once inhabited. In Southern Russia numerous remains of it are found, whereas in the English caves it is rarer, the cave-hyena predominating here. Apart from the exceptions just mentioned, J. F. Brandt considers North Asia and the high Northern latitudes to be the region in which the European, North Asiatic, and North American land fauna had concentrated during the Tertiary and Drift Periods, and whence their migrations and advances took place according as it grew older. As the northern fauna spread over more southern latitudes during the Drift Period, they took possession of the habitats of the species there belonging to the Tertiary Period, drove them back into tropical and subtropical regions, and formed the real stock of the Drift fauna, as described by Von Zittel in his "Palæozoology."

Companions of the Mammoth

Mammoth's Arrival in Europe

One thing is certain—namely, that the northern borders of Siberia were not the real home of the mammoth and its companions; the original habitat of these animals points to the far interior of Asia, particularly to the wild table-lands, where they so far steeled themselves in enduring the climate that in the course of the Glacial Period half the world became accessible to them. As far as is known to-day, the mammoth arrived in Europe earlier than on the northern borders of Asia, where, protected by climatic conditions, its remains are most numerous and best preserved. The number of these gigantic animals must have been very considerable in this Far Northern region for a time, judging from the abundance of bones found there. In Central Europe only a few places are known—such as Kannstatt Predmost in Moravia, etc.—where the mammoth is found with similar frequency. The mammoth attained its widest dis-



AN ACTUAL PHOTOGRAPH OF THE PREHISTORIC MAMMOTH

This stuffed carcase of a mammoth is the rarest treasure of St. Petersburg Academy. Skeletons of these creatures exist in plenty, but actual carcases are very rare. This was found embedded in the ice on the New Siberian Islands. One carcase so embedded was discovered five years before it could be freed from the ice.

tribution in the Interglacial Period. In that period it crossed the Alps, and arrived on the other side, in North Asia, at the border of the "stone-ice" masses of inland ice that were still preserved from the first Glacial Period. The vegetation there was richer then than it is to-day; now only the vegetation of the tundra can exist. Animals found coniferæ, willows, and alders in sufficient quantity to enable them to keep in herds. All the same, we have not to imagine the climate on the borders of the ice to have been "genial," for from that period originate the mammoth carcases that are found frozen entire in crevasses of the ice-fields. When the new period of cold—the second Glacial Period—began. these Far Northern regions must have become unsuitable for the mammoth owing to the want of food. Von Toll, who has examined the fossil ice-beds and, their relation to the mammoth carcases particularly on New Siberian Islands, says:



SKELETON OF A MAMMOTH
in the Natural History Museum, South Kensington.

The mammoths and their contemporaries lived where their remains are found; they died out gradually in consequence of physical geographical changes in the region they inhabited, and through no catastrophe; their carcases were deposited during low temperatures, partly on the river-terraces, and partly on the banks of lakes or on glaciers (inland ice), and covered with mud; like the ice-masses that formed the foundation of their graves, their mummies were preserved to the present day, thanks to the persistent or increasing cold.

The woolly-haired mammoth did not survive the second Glacial Period

anywhere; in the post-Glacial Period its traces have disappeared.

The Drift series of strata are nowhere so clearly exemplified as in the New Siberian Islands, where the Drift stone-ice still forms very extensive high "ice-cliffs," always covered with a layer of loam, sand, and peat, and having precipices often of great height—in one place seventy-two feet.

Embedded in these cliffs of stone-ice have been found the mammoth carcases, which formerly sank into crevices in the ice. These crevices are partly filled up with snow, which has turned into "firn" and finally into ice, but partly also with loam or sand, which are merged above immediately into the strata overlying the stone-ice. In the year 1860 Bojavski, the mammoth-hunter, found a mammoth, with all its soft parts preserved, sticking upright in a crevice in the ice filled with loam; in 1863 it was thrown down, together with the coast-wall that sheltered it, and washed away by the sea.



A SURVIVOR OF THE DRIFT PERIOD
Only one representative of the great Drift fauna, the musk-ox, has been able to preserve its life to the present day on the larger remnants of its former vast home, such as Greenland and Grinnell Land.

The Tunguse Schumachow had been more fortunate as early as 1799. During his boating expeditions along the coast, on the look-out for mammoth-tusks, he observed one day, between blocks of ice, a shapeless block which was not at all like the masses of driftwood that are generally found there. In the following year the block had melted a little, but it was only at the end of the third summer that the whole side and one of the tusks of a mammoth appeared plainly out of the ice; the animal, however, still remained sunk in the ice-masses. At last, towards the end of the fifth year, the ice between the ground and the mammoth melted more quickly than the rest, the base began to slope, and the enormous mass, impelled by its own weight, glided down on to the sand of the coast. Here Adams found the carcase in 1806, or as much as the dogs and wild animals had left of it. The whole skeleton, with a portion of the flesh, skin, and hair, has since formed one of the chief ornaments of the collection in the Academy at St. Petersburg. According to Von Toll, who personally visited the site of Bojavski's discovery, the following profile presented itself there: first the tundra stratum; then an alternation of thin strata of loam and ice; under these a peat-like layer of grass, leaves, and other vegetation, that had been washed together; then a fine layer of sand, with remains of *Salix*, etc., and finally stone-ice. At another place, in Gulf Anabar, in 73° north latitude, Von Toll also found the ground-moraine under a fossil ice-bed, which appears to prove his theory of a Drift region of inland ice, of which the stone-ice beds of New Siberia and Eschscholtz Bay are remains.

Of these strata the frozen loam deposits over the stone-ice, containing the willow and the alder, are doubtless Interglacial. Some of the remains of the alder are in such wonderful preservation that there are still leaves and whole clusters of catkins on the branches.

The land-mass to which the present New Siberian Islands belong was only dismembered at the end of the Interglacial Period, when colder sea-currents procured an entrance, and the accumulation of snow-masses diminished simultaneously with the sinking of the land, whereas the cold increased. The flora died off, says Von Toll, and the animal world was deprived of the possibility of roaming freely over vast areas. Only one representative of the great Drift fauna, the musk-ox, has been able to preserve its life to the present day on the larger

remnants of its former vast home, such as Greenland and Grinnell Land.

As we have said, the geological and climatic conditions in all regions of the earth affected by the Glacial Period were closely similar to those just described. In other places the Drift stone-ice has long disappeared, but the ground-moraines of the former inland ice-masses, and the surface-moraines (terminal and lateral) of the former gigantic glaciers, constitute its unobliterated traces. On the moraines of the earlier Glacial Period we find the strata of the Interglacial Period deposited, and on the later moraines of the second (last) Glacial Period lie the remains of the post-Glacial Period, in the course of which a continual increase in the yearly temperature—probably only a few degrees of the thermometer—caused the glaciers to melt and retreat, and opened the way for the return of plants and animals to what had been deserts of snow and ice. The place formerly occupied by the Interglacial and Glacial fauna is then taken by the post-Glacial fauna, which proves considerably different.

Remains of the Ice Age

A number of the most characteristic species of the former sections of the Drift Period are already absent in the earliest post-Glacial deposits; the fauna approaches nearer and nearer in its composition to that of the present day. The inland ice-masses and gigantic glaciers began to melt away, and gradually retired to the present limits of the glaciation that forms the remains of the Glacial Period of the Drift. The animal forms of the beginning of the post-Glacial Period are still living, and the plants characterising this final stage of the Drift Period are still growing on the borders of the ice at the present day. In the post-Glacial Period a few Northern forms—such as the reindeer, lemming, ringed lemming, glutton, zizel, whistling hare, and jumping mouse—still retained for a time their habitats in Central Europe. Part of the Drift fauna—as the horse, wild ass, saiga antelope, and Asiatic porcupine—concentrated again in the Asiatic steppes, from which they had formerly won their territory of the Drift Period; the specific Glacial forms—the reindeer and his above-mentioned companions—followed the retreating ice-masses into the Far North, and even into Polar regions. Another part—the specially Alpine forms, such as the ibex, chamois, marmot, and Alpine hare—migrated with the Alpine glaciers into the high valleys of the Alps, where they could continue the life they had led in the lowlands during the Glacial Period. The mammoth, woolly-haired rhinoceros, and cave-bear are extinct.

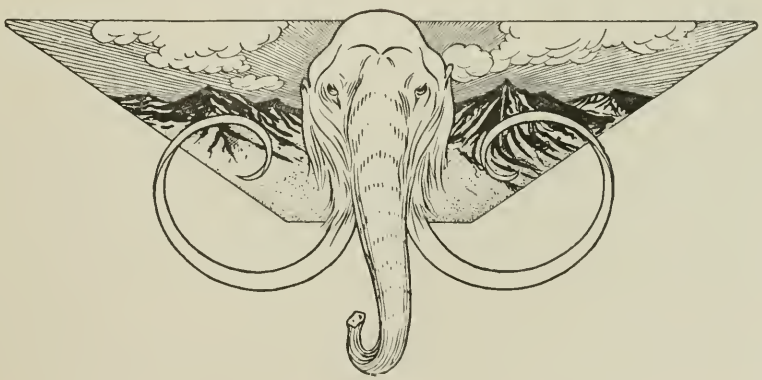
The present-day mammalian fauna of Europe and North Asia accordingly bears a comparatively young character; during the Drift, and especially in consequence of the Glacial Period, it underwent the most considerable transformations.

Coming of Man upon the Scene

It is in the middle of this great drama of a gigantic animal world struggling and fighting for its existence with the superior powers of Nature, during the Interglacial period of the Drift, that man suddenly appears upon the scene in Europe like a *deus ex machina*.

Whence he came we do not know.

Did he make his entrance into Europe in company with the Drift fauna that immigrated from Central Asia, or have we to seek his original home in the New World?





THE FIRST TENANTS OF THE WORLD: CREATURES THAT LIVED BEFORE MAN

This page represents the most typical of the giant creatures that inhabited the world before man. With possibly one exception, they had disappeared before man came and, through long centuries, slowly won dominion over the earth.



Professor JOHANNES RANKE

THE APPEARANCE OF MAN ON THE EARTH

THE remains of the Drift fauna are usually found mixed up and washed together in caves and rock-crevices. From the investigation of the caves in Thuringia, Franconia, and elsewhere practically proceeded the first knowledge of the Drift fauna of Central Europe. Here, right among the bones of primeval animals, were also found bones and skulls of man. The strata in which they were discovered appeared undisturbed; that they came into the old burial-places of the Drift fauna subsequently—perhaps by an intentional burial of relatively recent times—was thought to be out of the question. The discovery that became most famous was Esper's, in one of the richest caves of "Franconian Switzerland," the Gaillenreuth cave. There, in 1774, Esper found a man's lower jaw and shoulder-blade at a perfectly untouched spot protected by a stone projection in the cave wall, in the same loam as bones of the cave-bear and other Drift animals. Later, a human skull with some rude potsherds of clay came to light in another place. Esper argued thus:

The Mystery of a Human Skull

As the human bones (lower jaw and shoulder-blade) lay among the skeletons of animals, of which the Gaillenreuth caves are full, and as they were found in what is in all probability the original stratum, I presume, and I think not without sufficient reason, that these human limbs are of equal age with the other animal fossils.

The Cuvier catastrophe theory could not allow this inference; according to that theory it was a "scientific postulate" that man could not have appeared on the earth until the alluvial period, and therefore after the Drift fauna had become extinct. Therefore, in spite of appearances, the human bones must have been more recent; and it was indeed absolutely proved that the skull that Esper had found in the cave with the rude clay potsherds originated from a burial in the floor of the cave. As this was full of remains of Drift animals, the corpse, which had been covered with the earth that had been thrown up in digging the grave, was necessarily surrounded by these remains, and even appeared embedded in them.

It was ascertained that in very early times, but yet long after the Drift Period, the dwellers near by had had a predilection for using the caves as burial-places, so that the fact of human bones coming together with bones of Drift animals in the floor of the same cave is easily explained. Moreover, it was found that from the earliest times down to the present day the caves had been used by hunters, herdsmen, and others as places of shelter in bad weather, as cooking-places, and sometimes even—especially in very early times—as regular dwelling-places for longer periods, so that refuse of all kinds, and often of all ages and forms of civilisation that the land has seen from the Drift Period down to modern times, must have got into the floors of the caves. If these were damp and soft, the remains of every century were trodden in and got to lie deeper and deeper, so that, for instance, the fragments of a cast-iron saucepan were actually found right among the bones of regular Drift animals in a cave in Upper Franconia.

The Story of the Caves

The discoveries of human remains in caves appeared discredited by this, and to be of no value as proofs of the co-existence of man with the Drift fauna. And indeed this position must practically be still taken at the present day: all cave-finds are to be judged with the greatest caution. They in themselves would never have been sufficient to establish the existence of Drift Man, although, according to the general change in scientific thought that led to the overthrow of Cuvier's theory, Drift Man is now just as much a postulate of science as was formerly the case for the opposite assumption.

The Caves do not Prove Drift Man

The first sure proofs were adduced in France by Boucher de Perthes, in the Drift beds of the Somme valley, near Abbeville, at the end of the third decade

of the nineteenth century. Fully recognising the inadequacy of proof given by cave-finds, he had sought for the relics of man in the undisturbed Drift beds of gravel and coarse sand that contains the bones of Drift animals, which by their covering and depth precluded all suspicion of having been subsequently dug over.

Finding the First Drift Man

And he was successful. He had argued in exactly the same manner as Esper had formerly done, but with better right. In the stratified Drift formations every period is sharply defined by the layers of differently coloured and differently composed strata horizontally overlying one another. Here the proofs begin. They are irrefutable if it is shown that the relics of man have been there since the deposit. Being no less immovable than this stratum in which they lie, as they came with it, they were likewise preserved with it; and as they have contributed to its formation, they existed before it.

That is the line of thought according to which Boucher de Perthes was able, in 1839, to lay before the leading experts in Paris—at their head Cuvier himself—his discoveries proving the former existence of Drift man. But his demonstrations were not then sufficient to break the old ban of prejudices that were apparently founded on such good scientific bases; his proofs of the presence of man in the Somme valley at the time of the Drift, contemporaneously with the extinct Drift animals, were ridiculed. It was twenty years before these long-neglected discoveries in the Somme valley concerning the early history of man were recognised by the scientific world. This was only made possible by Lyell, whose authority as a geologist had risen above Cuvier's, placing the whole weight of it on Boucher's side, after having personally travelled over the Somme valley three times in the year 1859, and having himself examined all the chief places where relics of Drift Man had been discovered.

The Overthrow of Cuvier's Famous Theory

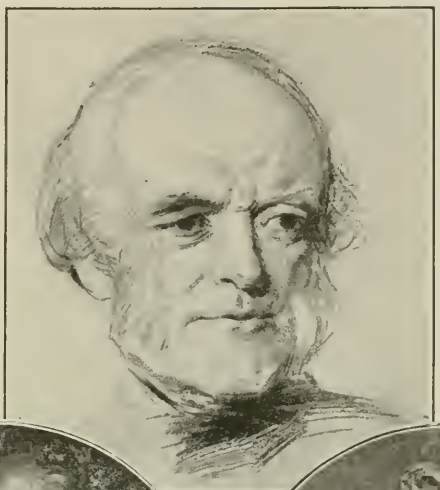
According to Lyell's description, the Somme valley lies in a district of white chalk, which forms elevations of several hundred feet in height. If we ascend to this height we find ourselves on an extensive tableland, showing only moderate elevations and depressions, and covered uninterruptedly for miles with loam and brick earth about five feet thick and quite devoid of fossils. Here and there on the chalk may be noticed outlying patches of Tertiary sand and clay, the remains of a once extensive formation, the denudation of which has chiefly furnished the Drift gravel material in which the relics of man and the bones of extinct animals lie buried. The Drift alluvial deposit of the Somme valley exhibits nothing extraordinary in its stratification or outward appearance, nor in its composition or organic contents. The stratum in which the bones of the Drift fauna are found intermingled with the relics of man is partly a marine and partly a fluviatile deposit. The human relics in particular are mostly buried deep in the gravel; almost everywhere one has to pass down through a mass of overlying loam with land shells, or a fine sand with fresh-water molluscs, before coming to beds of gravel, in which the relics of Drift Man are found.

Everything shows that the relics of man are here in a secondary *situs*, deposited in the same way as the bones of extinct animals and the whole geological material in which everything is embedded. That is the reason why the finds cannot be more exactly dated. They doubtless belong to the general drift, but whether to the Postglacial Period, or the warmer Interglacial Period, cannot be decided. The fauna admits of no absolute limitation, owing to its being mixed from both periods. The mammalia most frequently found in the strata in question are the mammoth, Siberian rhinoceros, horse, reindeer, ureox, giant fallow-deer, cave-lion, and cave-hyena. In very similar Drift deposits of the Somme near Amiens traces of man were found beside the bones of the hippopotamus and the elephant.

Animals of the Ice Age

These animals were chiefly prevalent in France and Germany in the Preglacial and Interglacial Periods of the Drift. Part of the animal remains found near Abbeville, particularly those of the cave-lion and cave-hyena, also point to the warmer Interglacial Period; on the other hand, the mammoth, Siberian rhinoceros, and especially the reindeer, appear to indicate with all certainty the second Glacial and Postglacial Periods. The bones of the older Drift animals may have been washed out of other primary *situs*; the reindeer had certainly already taken possession of those parts of France when the relics of man were embedded.

In spite of the most eager search for similar relic-beds affording sure evidence of Drift Man, only a very few have as yet been discovered that can be placed by the side of those in the Somme valley. Two are in Germany, and are the more valuable as a more exact date can be given to them within the Drift Period. One is near Taubach (Weimar), the other at the source of the Schussen. The one at Taubach belongs to the Interglacial Period, that at the source of the Schussen to the Postglacial Period. The former lies on the moraines of the first Glacial Period, which was followed by the Interglacial Period; the latter on the moraines of the second Glacial Period, which slowly passed into the Postglacial Period.



Lyell



Cuvier



Boucher De Perthes

THE OVERTHROW OF A FAMOUS THEORY OF THE ORIGIN OF THE EARTH AND MAN

When Cuvier was supreme among geologists his theory that the great geological ages ended with sudden catastrophes which annihilated all life, and that all life was then created afresh, was universally accepted. One result of this theory was the disbelief in the existence of man before the Glacial Age. Boucher de Perthes sought to establish the former existence of Drift Man on finding human relics in the Somme Valley; but not until Sir Charles Lyell threw his influence on the side of De Perthes was the Preglacial existence of man admitted, and the long-accepted theory of Cuvier overthrown.

The Drift relic-bed in the calc-tufa near Taubach lies, as we have said, over the remains of the first Glacial Period, and according to Penck, one of the best authorities on the Drift, belongs to the warmer intermediate epoch between the two great periods of glaciation. The proofs given by the plant and animal remains agree entirely with the proofs given by the conditions of stratification. In the rich fauna found there, animals indicating a cold climate are entirely absent, and a comparison of the whole of the finds proves that at the time when man was present there no kind of arctic conditions can have prevailed. There is no reindeer, no lemming. The roe, stag, wolf, brown bear, beaver, wild boar, and aurochs were at that time inhabitants of these regions, and the only inference they allow is that of a temperate climate. The mollusc fauna, in which also all Glacial forms are absent, also leads to the same conclusion; all that occur are familiar to us from those of the present day in the same district. The fauna would really appear quite modern were it not that a very ancient stamp is imparted to it by several extinct types. With the modern animals enumerated are associated the cave-lion, cave-hyena, ure-elephant, and Merckian rhinoceros, characterising the whole deposit as a distinctly Drift one, which is still further proved stratigraphically by the covering of "loess." The Taubach relic-bed is a typical illustration

of the climatic and biological conditions of the warmer Interglacial Period; the regions of Central Europe, which had been covered with masses of ice in the first Glacial Period, had, after the ice melted, become once more accessible to the banished plants and animals of the Preglacial Period, until they were annihilated, or at least driven definitely from their old habitats by the second Glacial Period.

The Climate of the Ice Age

The celebrated relic-bed at the source of the Schussen, near Schussenried, at a little distance from Ulm, brings us —in strong contrast to Taubach—into quite glacial surroundings. It was on the glacier-moraines of the last great glaciation, and belongs, therefore, to that period which must still be reckoned as part of the Drift—the Postglacial Period, which gradually passed into the warmer present period. Under the tufa and peat at the source of the Schussen we find the type of a purely northern climate, with exclusively northern flora and fauna; everything corresponds to climatic conditions such as prevail nowadays on the borders of eternal snow and ice, or begin at 70° north latitude.

Schimper, one of the best authorities on mosses at the present day, found among the plant-remains under the tufa at the source of the Schussen only mosses of northern or high Alpine forms. Among them was a moss brought from Lapland by Wahlenberg, which, according to Schimper, occurs in Norway near the chalets on the Dovrefjeld, on the borders of eternal snow, and also in Greenland, Labrador, and Canada, and on the highest summits of the Tyrolese Alps and the Sudetic Mountains. It has a special preference for the pools in which the water of the snow and glaciers flows off with its fine sand. There were also found mosses which have now emigrated to cold regions, to Greenland and the Alps. The most numerous animals were the reindeer, and yellow and Arctic foxes, as distinctly Arctic forms; and there were also the brown bear and wolf, a small ox, the hare, the large-headed wild horse—which always occurs in the Drift as the companion of the reindeer—and, lastly, the whistling swan, which now breeds in Spitzbergen or Lapland. There is an absence of all the present animal forms of Upper Swabia, as well as of the extinct Drift animals, either of which would indicate a warmer climate.

Flora and Fauna of the Ice Age

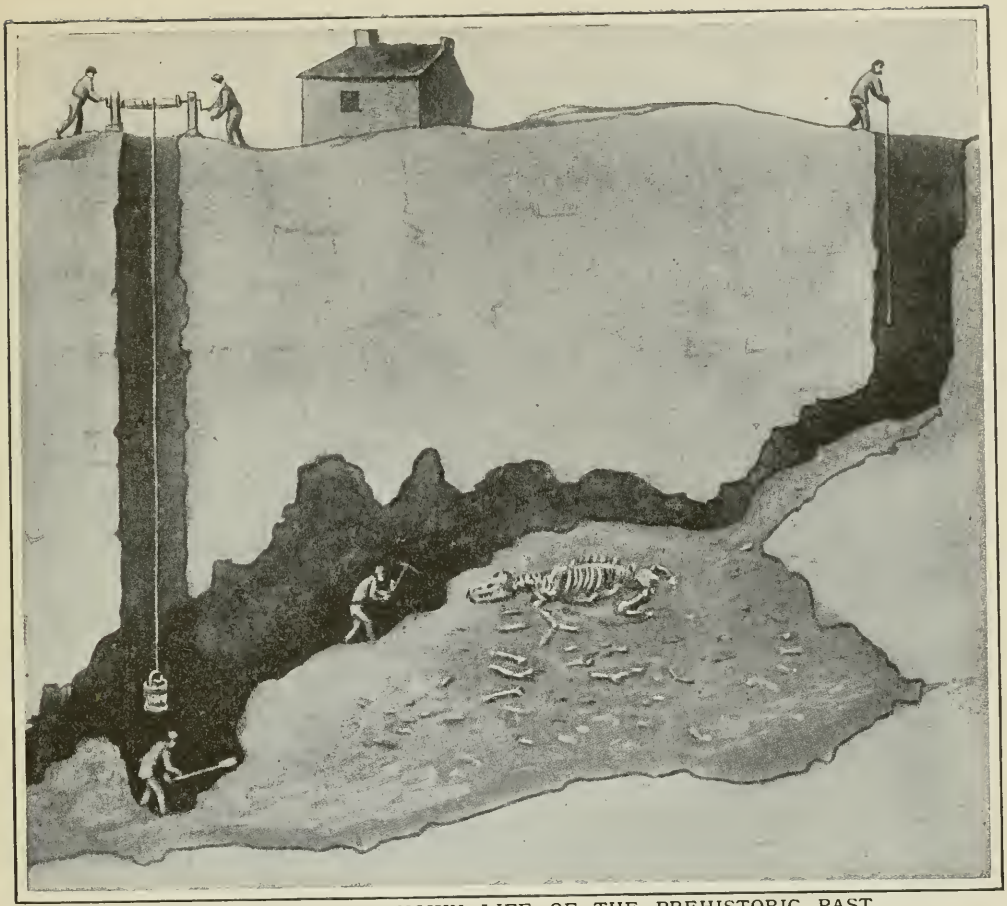
More decided climatic or biological contrasts than those afforded by the relic-beds at Taubach and the source of the Schussen could not be imagined; here we have with certainty two perfectly different periods before us, but both belonging to the general Drift Era.

Although almost all the other places where Drift Man has been found exhibit peculiarities, Taubach and the source of the Schussen seem the best representatives of the two chief types in Europe. Places giving better proof have not yet come to light anywhere in the Old World.

At first sight the palæontological strata of South America, in which the presence of man has been proved by Ameghino, appear to give a very different picture. The animal forms occurring here contemporaneously with man deviate to such an extent from those familiar to us in the Drift of the Old World that it required the keen eye and the complete grasp of the whole palæontological material of the world that characterise Von Zittel to recognise and establish the connections here, while the discoverer himself thought that he must date his discoveries of man back to the Tertiary Period.

Evidence from South America

The strata in which the earliest traces of man as yet appear to be proved in South America are the extensive "loess-like" loam deposits of the so-called "pampas" formation in Argentina and Uruguay, with their almost incomparable wealth of animal remains, particularly conspicuous among which are gigantic representatives of edentates that now occur only in small species in South America: Glyptodontia (with the gigantic *Glyptodon reticulatum*) and dasypoda; also of the gravigrada, the giant sloth (*Megatherium americanum*). The toxodontia were also large animals, now extinct. But besides the specifically South American forms, numerous "North American immigrants" also appear in the pampas formation. It was only at the close of the Tertiary Period that the southern and northern halves of America grew together into one continent, and the faunæ of North and South America, so characteristically different, then began to intermingle with one another. The South American autochthons migrate northward; on the other hand, North American types—as the horse, deer, tapir, mastodon, *Felis*, *Canis*, etc.—use the newly-opened passage to extend their range of distribution. The northern



REVEALING THE UNKNOWN LIFE OF THE PREHISTORIC PAST

A section of the earth, representing excavators in the act of discovering the remains of mammals in a cave in the South of England. Our illustration is reproduced from Buckland's "Reliquiæ Diluvianæ," London, 1822.

animal forms are very conspicuous among the animal world of South America, hitherto cut off from North America and characterised by the above-mentioned wonderful and, in part, gigantic edentates, marsupials, platyrhine apes, etc. Of the great elephantine animals of North America only the mastodon crossed over to South America. In the middle and latest Tertiary formations the genus mastodon is widely distributed over Europe, North Africa, and South Asia. In North America the oldest species of the mastodon appear in the Middle Tertiary (Upper Miocene), but the most species are found in the latest Tertiary (Pliocene) and the Drift (Pleistocene); in South America the mastodon is limited to the time of the pampas formation. Its tusks are long and straight, or slightly curved upward; its lower jaw also possesses two tusks, which project in a straight direction, but are considerably less than the upper tusks in size. From the results of Ameghino's investigations man appears to have come to South America with these northern immigrants, especially with the mastodon. In Ameghino's lists of the animals of the pampas formation Von Zittel describes man. like the animal forms enumerated above, as an immigrant from North America, and as a northern type.

According to Von Zittel's statements there is no longer any doubt that the pampas formation, and with it early man, of South America, is to be assigned to the Drift Era; he sums up the case in these words:

In South Asia and South America the Tertiary Period is followed by Drift faunæ, which in the main are composed of species still existing at the present day, but yet show somewhat closer relations to their Tertiary predecessors.



Professor JOHANNES RANKE

THE LIFE OF MAN IN THE STONE AGE

THE oldest remains affording us knowledge of man are not parts of his body—not the skeleton from which, in the case of primeval animals, we have learned to reconstruct their frame—but evidences of the human mind. Until the discoveries of Boucher de Perthes turned the scale, search had been made in vain among the bones of the fossil fauna for remains of the skeleton of fossil man of undoubtedly the same age ; it was not bones, but tools, by which the Abbeville antiquary proved that man had been a "witness of the Flood" in Europe ;

Man a Witness of the Flood

tools which taught irrefutably that the mental powers of fossil man of the Drift were similar in kind to, if possibly less in degree than, those of living members of mankind. The Drift tools prove that, even in that early epoch to which we have learned from Boucher to trace him back, man was distinctively man.

Boucher de Perthes was an expert archæologist, and he knew that in Europe, in a very early period of civilisation, men had made their tools and weapons of stone, as many tribes and races in a backward state of civilisation—for example in South America, the South Sea Islands, and many other places—do at the present day. These stone implements are practically indestructible, and from ancient times manifold superstitions have attached to the curious articles that the peasant turns up out of the earth in ploughing. Such stone weapons were called lightning-stones by the Romans, as they are by countryfolk at the present day. Scientific archæology occupied itself with them at an early date. In 1778 Buffon declared the so-called lightning-stones, or thunder-stones, to be the oldest art-productions of primeval man, and as early as 1734, Mahudel and Mercati had pronounced them to be the weapons of antediluvian man. Such views determined the line of thought in Boucher's researches. From the very beginning he sought, in the undisturbed Drift beds of his home, not so much for the bones of Drift Man as for his tools, which he suspected to be of the form of the lightning-stones, although he knew that, so far as was hitherto known, these belonged to a very much later epoch—that is, specially to the Alluvial or "Recent" Period.

His expectations were crowned with success. Deep below the mass of overlying loam and sand, right in the strata of gravel and coarse sand, he found stone tools, which without the slightest doubt had been worked by the hand of man for definite and easily recognisable purposes as implements and weapons. Although to a certain extent ruder, they are practically the same forms as the tools, weapons, and implements of stone that we see in use among so-called "savages" of the present day. It is the tool artificially prepared for a certain purpose that raises man above the animal world to-day, as it did in the time of the Drift.

Upon his first visit to the relic-beds near Abbeville in the spring of 1859, Lyell had obtained seventy specimens of these stone tools from the chief of them. The tools were all of flint, which occurs in abundance in the chalk of the district, and is still obtained and worked for technical purposes at the present day. The worked stones that Boucher found were termed flint or silex tools, according to the material of which they were made. They occurred in the particular beds, as Lyell

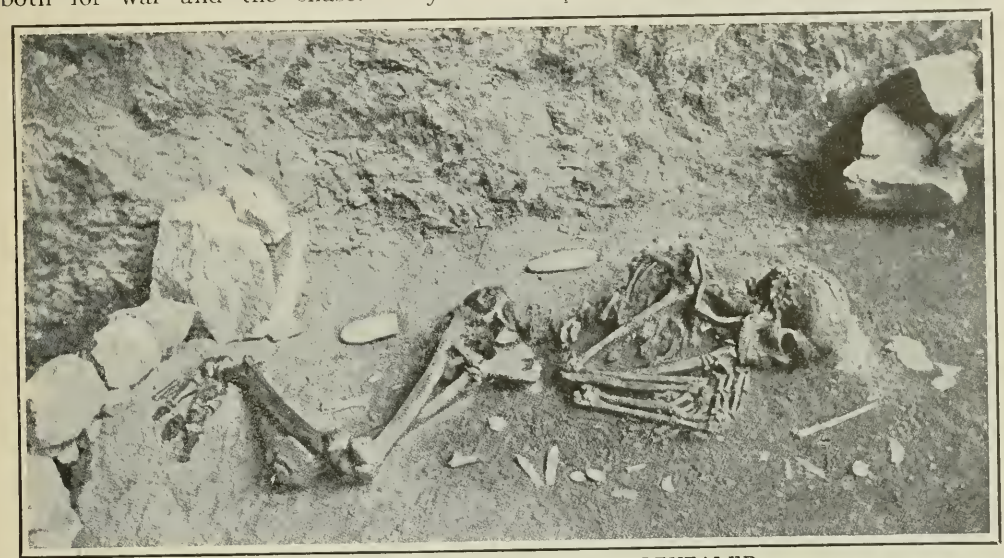
Drift Man's Three Kinds of Tools

expressed it, in wonderful quantities. The famous geologist distinguished three chief forms. The first is the spear-head form, and varies in length from six to eight inches. The second is the oval form, not unlike many stone implements and weapons that are still used as axes and tomahawks at the present day—for instance, by the aborigines of Australia. The only difference is that the edge of the Australian stone axes, like that of the European implements of later periods of civilisation known as thunderbolts or lightning-stones, is mostly produced by grinding, whereas on the stone axes from the drift of the Somme valley it has always been obtained by simply chipping the

stone, and by repeated, skilfully directed blows. According to Tylor the stone implements of the old Tasmanians were entirely of Drift form and make, all without traces of grinding, being simply angular stones whose cutting-edge had been sharpened by being worked with a second stone. Some of these stone implements of Drift Man may have been simply used in the hand when the natural form of the stone offered a convenient end, but the majority were certainly fastened in a handle in some way or other, to serve as weapons—spear-heads or daggers—both for war and the chase. Lyell's large number of very rude specimens have also been found, of which many may have been thrown away as spoiled in the making, and others may have been only rubbish produced in the working. Evans has practically proved that it is possible to produce such stone implements in their remarkable agreement of form without the use of metal hammers. He made a stone hammer by fastening a flint in a wooden handle, and worked another piece of flint with this until it had assumed the shape of the axe form—the second, oval form—of the Drift implements.

The Chief Forms of Tools

Lyell draws attention to the fact that, in spite of the relatively great frequency



HOW PREHISTORIC MANKIND IS REVEALED

Most of our knowledge of the earliest life of man has been revealed by the excavator. When at a certain depth below the earth's surface the skeleton of a man is found, surrounded with rude stone weapons, ornaments, and the remains of domestic animals, a whole chapter in the life of Prehistoric Man stands revealed at one glance. Our photograph shows an actual skeleton and grave of the Stone Age, as discovered in the year 1875 near Mentone.

second chief form would have been used as an axe for such purposes as digging up roots, felling trees, and hollowing out canoes, or to cut holes in the ice for fishing and for getting drinking water in the winter. In the hand of the hunter and warrior the stone axe also became a weapon. As the third form of stone implements Lyell distinguished knife-shaped flakes, some pointed, others of oval form or trimmed evenly at one end, obviously intended partly as knives and arrow-heads, and partly as scrapers for technical purposes.

Although there are many variations between the first two chief forms, yet the typical difference indicating the different purpose of their use is always easily recognised in well-finished examples. A

of stone implements, it would be a great mistake to rely on finding a single specimen, even if one occupied himself for weeks together in examining the Somme valley. Only a few lay on the surface, the rest not coming to light until after removing enormous masses of sand, loam, and gravel. As we may presume with Lyell that the larger number of the Drift stone implements of Abbeville and Amiens were brought into their position by the action of the river, this sufficiently explains why so many were found at great depths below the surface; for they must naturally have been buried in the gravel with the other stones in places where the stream had still sufficient force or rapidity to

Lyell's Find in the Somme Valley



Mercier

A WORKER IN THE STONE AGE

Making an axehead of flint, like that photographed on the opposite page. From the painting by F. Cormon.

wash stones away. They can, therefore, not be found in deposits from still water, in fine sediment and overflow mud.

Bones of Drift Man are absent from the deposits of the Somme valley, in spite o the wonderful abundance of stone implements. The "lower jaw from Moulin-Quignon, near Abbeville," had been fraudulently placed there by workmen. But proof of the existence of man is undeniably assured by the objects, so unpretentious in themselves, that have been recognised as the work of his hands.

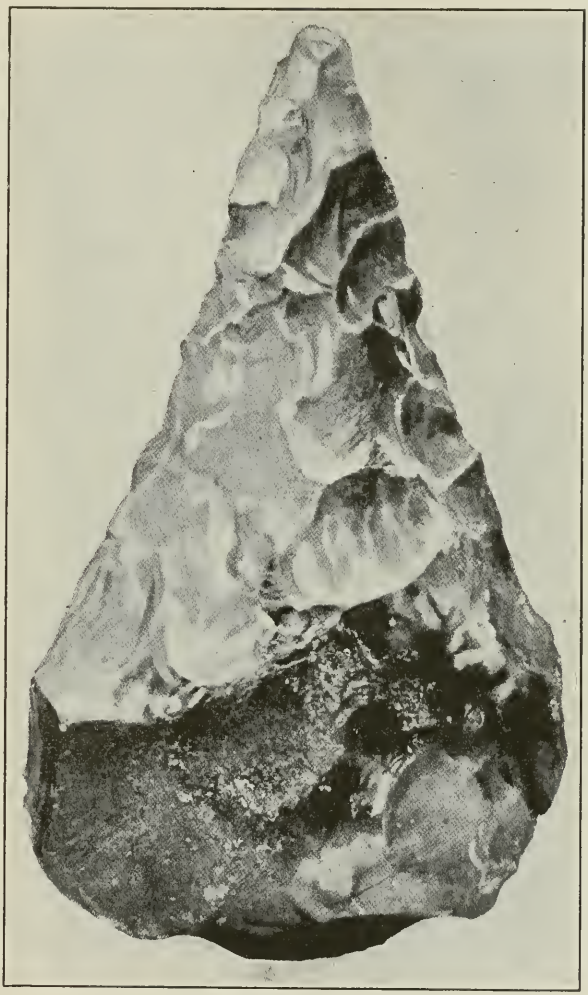
When once the recognition of Drift Man, founded on the authority of Lyell, was achieved, search for further relic-beds was made in England and France with success. Yet scarcely one of the newly discovered stations was to be compared to those of the Somme valley as regards purity of stratification and conditions of discovery. The relics of the "earliest Stone Age" or "Palæolithic Period," as the period of Drift Man was called, frequently came from caves and grottos, whose primary conclusiveness Boucher had rightly doubted.

Under these circumstances it was of the greatest importance that in Germany Drift Man was discovered in two places, where not only was the geological stratification just as clear as at Abbeville and Amiens, but where also the relics of Drift Man were found, not in a secondary *situs*, as they were then, but in a primary one. In addition to this the two German relic-beds may be safely assigned to the last two great divisions of the Drift Period, to the warmer Interglacial Period, and to the cold Glacial Period proper, with its Postglacial Period; and their climatic conditions were made clear from the remains of plants and animals found in them.

From the occurrence, in the deposits of the Somme, of reindeer that contain the stone implements of Drift Man, we can not, as we saw, exactly settle in what part of the Drift Era man lived there, whether in the Interglacial Period, to which numerous animal remains found there doubtless belong, or not until the "Reindeer" Period, as the last Glacial and early Postglacial Periods were called, when the reindeer was most largely distributed over France and Central Europe. One is inclined to date man's habitation of the Somme valley back to the Interglacial Period; but it is certain

that the relic-bed near Taubach is the first, and, as far as I can see, the only one hitherto, that has given sure proof of Interglacial Man in Europe. There the oldest vestiges of man in Europe were found that have yet been absolutely proved. We have not hitherto succeeded in Europe in tracing man farther back than the Interglacial Period. Relics of him are hitherto as absent in the older Drift as they are in the Tertiary.

The Taubach relic-bed also furnished no bones of Drift Man among all the parts of skeletons of Drift animals that we have mentioned. Here, too, as in the Somme valley, the proof of the presence of man is based on the works of his hand and mind. Here, too, stone implements and stone weapons are the chief things to be mentioned. But whereas, in the chalk district of France, flints of every size were to be had in the greatest abundance for the preparation of weapons and tools, corresponding stones are not exactly wanting at the two standard German places, though they occur in limited number and size. It is due to this that the larger forms of flint implements, which are most in evidence in the Somme valley, are absent at Taubach. On the other hand, smaller "knives and flakes"—Lyell's third form of Drift flint implements—occur here with comparative frequency and variety of form. Next to the usual lancet-shaped knife, worked flint flakes, of triangular prismatic form, with sharp corners, are most numerous at Taubach, and scrapers, chisels, awls, and the chipping-stones with which the stone implements were produced may also be distinguished among other things. The material for the implements was supplied by the older Drift débris of the valley—namely, flint, flinty slate, and quartz porphyry.



A WORKMAN'S TOOL IN THE STONE AGE
Flint implement found in Gray's Inn, London; now in British Museum.

Besides the stone implements which alone were observed in the Somme valley, still further important relics were found here in their primary *situs*. Above all, numerous finds of charcoal and burnt bones prove that the Drift Men of Taubach not only knew how to kindle fire, but were also accustomed to roast the flesh of the animals they killed in the chase. Stones and pieces of shell limestone also occur which have become reddish and hard from the action of heat. These are to be regarded as the floors and side-walls of the fireplaces on which the food was then and there prepared. The animal bones, especially those that were taken up from around the fireplace, appear in most cases to be remains of meals. This is shown at once by the fact that bones of young representatives of the large beasts of the chase—such as the rhinoceros, elephant, and bear—are very frequent as

compared with the rare occurrence of full-grown animals.

It appears that in the hunting and capture of animals the young ones were most easily killed, and therefore served chiefly as food. Whenever a large animal was killed, it was probably cut up on the spot by the fortunate hunters, who consumed at once part of its flesh; the trunk was then left at the scene of the killing, while the head, neck, and fore and hind legs, on which was the most muscular flesh, and which were at the same time easier to carry away, were taken to the settlement. This may explain why, among the many large bones of the rhinoceros that have hitherto been found, the ribs and the dorsal and lumbar vertebræ are almost entirely absent. Some of the bones of the beasts of the chase bear the unmistakable traces of man. They are broken in the manner characteristic of "savages" of all ages and climes—for the sake of the marrow, one of the greatest dainties of men living chiefly on animal fare. The broken-off heads of the metatarsal bones of the bison still show particularly clearly the method of breaking. They are broken off transversely exactly where the marrow canal ends, and on all these bones there is a roundish depression, or hole, at the same place—namely, in the middle of their front or back surface, and just where the end of the marrow canal is, therefore about in the centre of the break of the broken-off piece. The hole is a "blow-mark" of one inch in diameter, evidently driven in by force from without, as several well-preserved specimens still show the edges and splinters of bone pressed inward. These splinters and all the breaks are old, and have on the surface the same greasy coating, full of the sand in which they lay, as the bones themselves. The instrument used for breaking the bones in this way might very well have been the lower jaw of a bear with its large canine tooth, as Oscar Fraas has ascertained to have been the case in other places where Drift Man has been found. Such lower jaws were found at Taubach, and the nature and size of the hole and its edges agree with this assumption. The long bones of the elephant and rhinoceros were whole. Drift Man did not succeed in breaking these huge pieces, and where such bones are found broken they are accidental fractures. On the other hand, almost all bones of the bear and bison are intentionally split—in almost all cases transversely, and seldom lengthways.

Hunters of the Stone Age

How Drift Man Killed the Great Animals

In the Somme valley we have only the flint implements—which, although rude, are very regularly and uniformly made for different recognisable purposes—to tell us of the life and state of Drift Man; but the finds at Taubach afford us a rather closer insight into the conditions of his life and culture. What we had suspected from the first finds is confirmed here. During the Interglacial Period we see near Taubach, on the old watercourse of the Ilm, which had there at that time become dammed up into a kind of pond, a human settlement. This was occupied for a long period, as is proved by the large number of bones, evidently remains of meals, and by the quantity of charcoal. Immediately on the bank were the fire-places—rude hearths built of the stones obtained without trouble in the neighbourhood. Here the flesh of the beasts of the chase, the bison and the bear, and also the elephant and rhinoceros, was broiled in a crude manner in the hot ashes, as is still done by savages on the level of the Fuegians and primitive tribes of Central Brazil at the present day. For this no utensils are required, a sharpened rod or thin pointed stick being sufficient for turning and taking out the pieces of meat. The ashes that the gravy causes to adhere supply the place of salt and other seasoning. The meat was cut up with the stone knives, and many traces of cuts on the bones may also be attributable to these instruments. For cutting out larger portions a powerful and very suitable instrument was at hand, in the lower jaw of the bear, with its strong canine tooth, which also served for breaking bones to obtain the marrow. In spite of the apparent meanness of the weapons, remains of which we have found, the Drift Men of Taubach were yet able, as their kitchen refuse proves, not only to kill the bison and bear, but also the gigantic elephant and rhinoceros, both young and full grown.

Drift Man at his Meals

This shows man to have been then, as he is to-day, master even of the gigantic animal forms which so far surpass him in mechanical strength. It is the mind



REINDEER HUNTING IN THE LATER ICE AGE. After a picture by W. Kranz

The reindeer was the most familiar animal of the Later Ice Age, its body supplying food, clothing, and implements for Glacial Man.



WEAPONS OF THE CHASE USED BY PREHISTORIC MAN

A collection of neolithic lance and arrow heads found in Ireland, now to be seen in the British Museum.

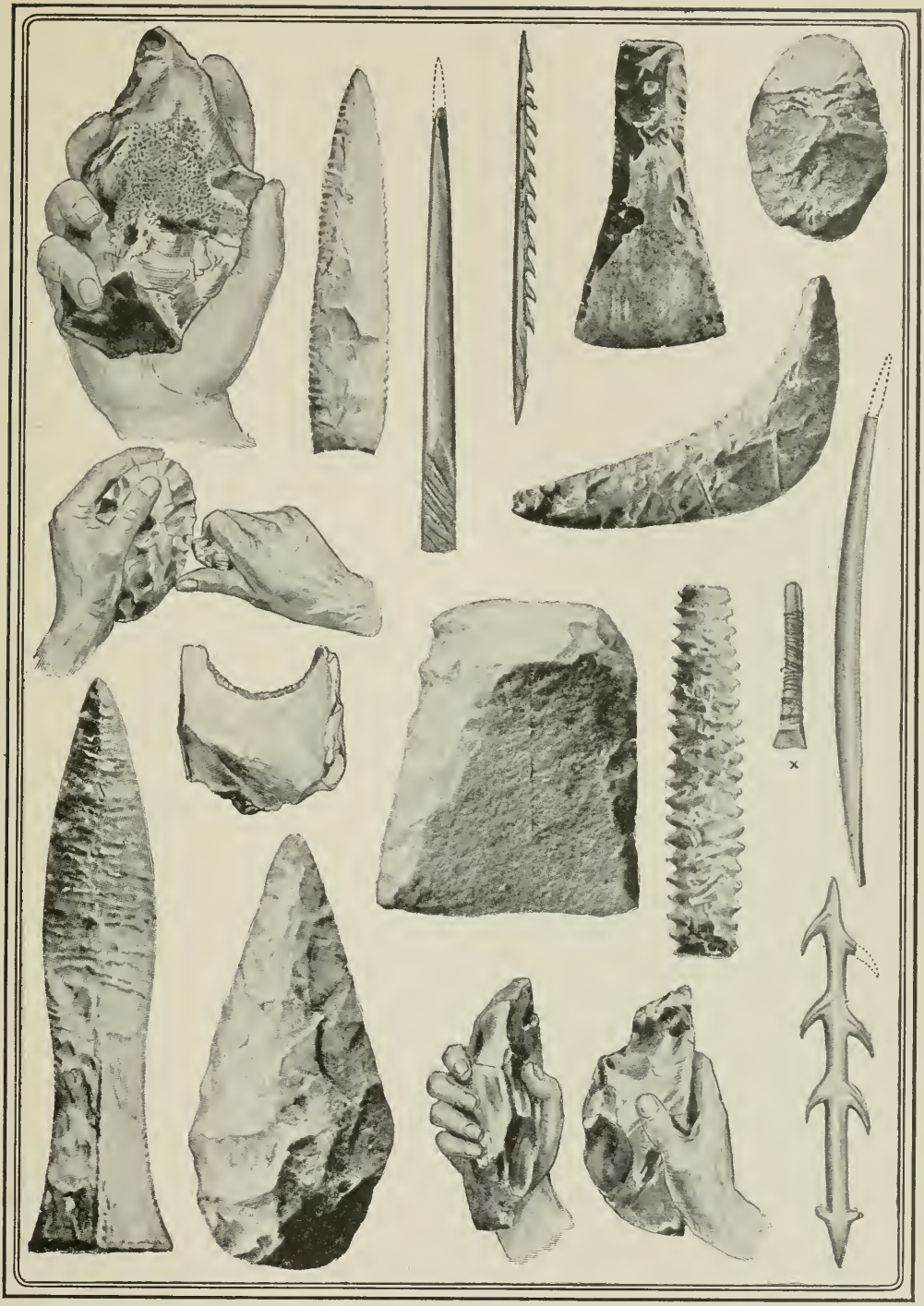
of man that shows itself superior to the most powerful brute force, even where we meet him for the first time. From the finds in the Somme valley it appears that Drift Man already possessed spear, dagger, and axe, besides the knife, as weapons. There the blades were of stone. The relatively small blades of the Taubach stone implements are, it is true, of the same character as the stone implements of Abbeville and Amiens, but they are chiefly, as we have said, merely knife-like articles, very suitable as blades for knives, scrapers, and daggers, and as arrow-heads, but not strong enough as hunting-weapons for such big game. The hunt must, therefore, have been more a matter of capture in pits and traps, as practised at the present day where similar large types of animals are hunted by tribes armed only with defective weapons. The kitchen refuse also proves that the settlement by the Ilm pond, near Taubach, was a permanent one, to which the hunters returned after their expeditions, bringing their game and trophies so far as they were easily transportable. But there is no trace of domestic animals. They could not have completely disappeared, any more than remains of clay vessels, which are still less destructible than bones, and in this respect may be compared to stone implements. There was no trace of pot-sherds either.

Drift Man after the Hunt

The finds in the Somme valley and near Taubach are of incalculable importance as sure, indisputable proofs of Drift Man in Europe; but as regards the wealth of information to be derived from them respecting man's psychical condition in that first period in which we can prove his existence, they are far and away surpassed by the find at the source of the Schussen, which Oscar Fraas, the celebrated geologist, has personally inventoried and described. Fraas has rightly given to his description of this find of Glacial Man—the most important and best examined hitherto—the title "Contributions to the History of Civilisation During the Glacial Period."

The Best "Find" of the Ice Age

The geognostic stratification of the relic-bed on one of the farthest advanced moraines of the Upper Swabian plateau proves that it belongs to the Glacial Period, and that this had already pushed its glacier-moraines to the farthest limit ever reached. In point of time the finds are, therefore, to be placed at the end of the Glacial Period, as it was passing into the Postglacial Period; everything still points to Far Northern conditions of life. The finds at the source of the Schussen are thus decidedly more recent,

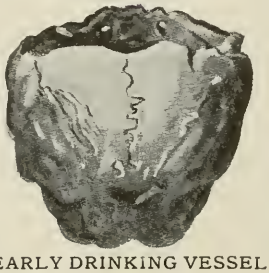


IMPLEMENTS OF THE STONE AGE AND THEIR MAKING

The methods of holding a hammer-stone and of making a flint by pressure are illustrated at the top, those of using a chopping tool at the bottom, of this plate. The other objects are spear-heads, axes, and hammers of stone and flint, and javelin-heads of horn, the latter being smooth and barbed. The method of tying a flint chisel to a wooden handle is shown at the right (x). Most of these objects are to be seen in the British Museum.

geologically, than those made at Taubach. They are a typical, or, better, *the* typical example of the so-called "Reindeer Period" of the end of the Drift.

From Fraas's description there seems to be no doubt whatever that the relic-bed, with its remains of civilisation, was perfectly undisturbed, and its palæontological contents plainly show its great geological age. It was perfectly protected by Nature. On the top lies peat, the same that covers the lowlands of the whole neighbourhood for miles, and forms the extensive moorlands of Upper Swabia, on which no other formations are to be seen than the gravel drift-walls thrown up by glaciers of the Drift Period. Under the peat lies a layer of calc-tufa, four to five feet thick, a fresh-water formation from the water-courses that now unite with the source of the Schussen. Under this protecting cover of tufa were the remains of the Glacial Period and Glacial Man. The tufa covered a bed of moss of a dark brown colour, inclining to green, the moss still splendidly preserved. Under this bed of moss was the glacier drift. The moss was dripping full of water and intermingled with moist sand. In it were the relics of Glacial Man—all lying in heaps as fresh and firm as if they had been only recently collected. A sticky, dark-brown mud filled the moss and sand and the smallest hollow spaces of antlers and bones, and emitted a musty smell.



EARLY DRINKING VESSEL
Reindeer's skull used as drinking vessel by men of the Stone Age. British Museum collection.

Glacial Man had used the place as a refuse-pit. Among the bones and splinters of bone of animals that had been slaughtered and consumed by man, among ashes and charred remains, among smoke-stained hearthstones and the traces of fire, there lay here, one upon the other, numerous knives, arrow-heads, and lance-heads of flint, and the most varied kinds of hand-made articles of reindeer horn. All this was in a shallow pit about seven hundred square yards in extent, and only four to five feet deep in the purest glacier drift, clearly showing that the excellent preservation of the bones and bone implements was solely due to the water having remained in the moss and sand. The bank of moss was like a saturated sponge; it closed up its contents hermetically from the air, and preserved in its ever-damp bosom what had been entrusted to it thousands of years before.

Under the peat and tufa at the source of the Schussen we find only the type of a purely Northern climate, with Northern flora and Northern fauna. There are no remains of domestic animals — not even of the dog, nor any bones of the stag, roe, chamois, or ibex. Everything corresponds to a Northern climate, such as begins to-day at 70° north latitude. We see Upper Swabia traversed by moraines and melting glaciers, whose waters wash the glacier-sand into moss-grown pools. We find a Greenland moss covering the wet sands in thick banks; between the moraines of the glaciers we have to imagine wide green pastures, rich enough to support herds of reindeer, which roved about there as they do in Greenland, or on the forest borders of Norway and Siberia, at the present day. Here, also, are the regions of the carnivora dangerous to the reindeer—the glutton and the wolf, and, in the second rank, the bear and Arctic fox.



TREASURE-STORES OF PRIMEVAL KNOWLEDGE
Such to-day are the mounds of prehistoric rubbish accumulated by the people of the Stone Age. These Danish "kitchen middens" have vastly enriched our knowledge of the remote past.

According to Fraas, it is on this scene that man of the Glacial Period appears; in all probability, a hunter, invited by the presence of the reindeer to spend some time—probably only the better portion of the year—on the borders of ice and snow. It is true that the relic-bed that tells of his life and doings is only a refuse-pit, which contains nothing good in the way of art productions, but only broken or spoiled articles and refuse from the manufacture of implements. The bulk of the material



A FAMILY GROUP IN THE STONE AGE

It was thus that the Danish kitchen middens illustrated on the opposite page were created. Each family group cast its refuse, in the shape of shells, bones, wood, etc., on the midden near at hand, and these heaps of rubbish in process of time became valuable records of the people's life, in which the archæologist can read for us the story of the past.

consists of kitchen refuse, such as, besides charcoal and ashes, opened marrow-bones and broken skulls of game. Not one of the bones found here shows a trace of any other instrument than a stone. It was on a stone that the bone was laid, and it was with a stone that the blow was struck. Such breaking-stones came to light in large numbers. They were merely field stones collected on the spot, particular preference being given to finely rolled quartz boulders of about the size of a man's fist. Others were rather rudely formed into the shape of a club, with a kind of handle, such as is produced half accidentally and half intentionally in splitting large pieces. Larger stones were also found—gneiss slabs, from one to two feet square, slaty Alpine limes, and rough blocks of one stone or another, which had probably represented slaughtering-blocks, or done duty as hearthstones, as on many of them traces of fire were visible. Where these stones had stood near the fire they were scaled, and all were more or less blackened by charcoal. Smaller pieces of slate and slabs of sandstone blackened by fire may have supplied the place of clay pottery in many respects; for, with all the blackened stones, not a fragment of a clay vessel was found in the layers of charcoal and ashes of the relic-bed.

History in a Rubbish Heap

The flint implements are of the form familiar to us from Taubach and the Somme valley, being simply chipped, not ground or polished. At the source of the Schussen, also, only comparatively small pieces of the precious raw material were found for the manufacture of stone implements. So that here, too, as at Taubach, Lyell's third form, the knife or flake, was practically the only one represented. They fall into two groups—pointed lancet-shaped knives and blunt saw-shaped stones. The former served as knife-blades and dagger-blades, and lance-heads and arrow-heads; the latter represented the blades of the tools required for working reindeer horn. The larger implements are between one and a quarter and one and a half inches broad and three to three and a half inches long; but the majority of them are far smaller, being about one and a half inches long and only three-eighths of an inch broad. The various flint blades appear to have been used in handles and hafts of reindeer horn. Numerous pieces occur which can only be explained as such handles, either ready or in course of manufacture.

Making Drift Man's Tools

Moreover, owing to the want of larger flints, numerous weapons, instruments, and implements were carved from reindeer horn and bone for use in the chase and in daily life. Fraas has ascertained exactly the technical process employed in producing articles of reindeer horn, and we see with wonder how the Glacial men of Swabia handled their defective carving-knives and saws on the very principle of modern technics. They are principally weapons—for example, long pointed bone daggers, otherwise mostly punchers, awls, plaiting-needles (of wood), and arrow-heads with notched grooves. These may possibly be poison-grooves; other transverse grooves may have served partly for fastening the arrow-head by means of some thread-like binding material, probably twisted from reindeer sinews, as is done by the Reindeer Lapps at the present day; other scratches occur as ornaments.

The forms of the bone implements show generally a decided sense of symmetry and a certain taste. For instance, a dagger, with a perforated knob for suspension, and a large carefully-carved fish-hook. Groove-like or hollow spoon-shaped pieces of horn were explained by Fraas to be cooking and eating utensils; probably they also served for certain technical purposes—as for dressing skins for clothing and tents, like the stone scrapers found in the Somme valley. A doubly perforated piece of a young reindeer's antler appears to be an arrow-stretching apparatus, like those generally finely ornamented, used by the Esquimaux for the same purpose. A branch of a reindeer's antlers, with deep notches filed in, is declared by the discoverer to be a "tally." The notches are partly simple strokes filed in to the depth of a twelfth of an inch, and partly two main strokes connected by finer ones. "The strokes," says Fraas, "are plainly numerical signs—a kind of note, probably, of reindeer or bears killed, or some other memento." Among the objects found were also pieces of red paint of the size of a nut—clearly fabrications of clayey ironstone, ground and washed, and probably mixed with reindeer fat and kneaded into a paste. The paint crumbled between the fingers, felt greasy, and coloured the skin an intense red. It may have been

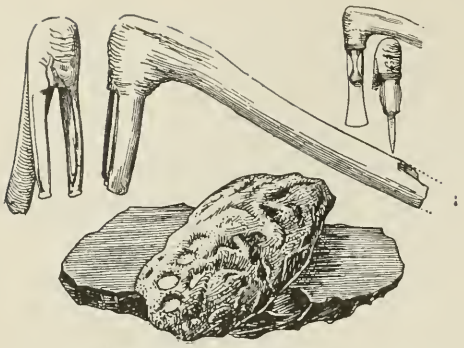
The Skilled Workman of the Drift



HUNTING FOR FOOD IN THE LATER ICE AGE Mercier
From the painting by Ferdinand Cormon

used in the first instance for painting the body. The Glacial men at the source of the Schussen were, according to the results of these finds, fishermen and hunters, without dogs or domestic animals and without any knowledge of agriculture and pottery. But they understood how to kindle fire, which they used for cooking their food. They knew how to kill the wild reindeer, bear, and other animals of the district they hunted over; their arrows hit the swan, and their fish-hooks drew fish from the deep. They were artists in the chipping of flint into tools and weapons; with the former they worked reindeer horn in the most skilful manner. Traces of binding material indicate the use of threads, probably prepared from reindeer sinews; the plaiting-needle may have been employed for making fishing-lines. Threads and finely-pointed pricking instruments indicate the art of sewing; clothing probably consisted of the skins of the animals killed.

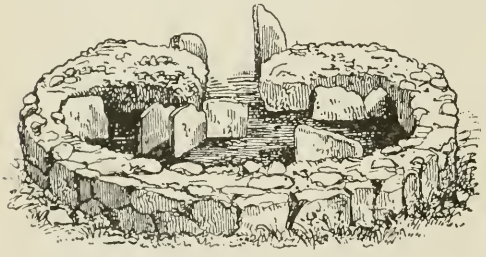
To this material concerning Drift Man, scientifically vouched for, coming from



IMPLEMENTS OF THE STONE AGE

The upper illustrations show handles of celt or stone-cutting instruments and method of hafting; the lower picture is that of a handmill of sandstone.

Drift strata that have certainly never been disturbed, other countries have hitherto made no equal contributions really enlarging our view. Yet the numerous places where palæolithic—that is, only rudely chipped—implements of flint, such as were doubtless used by Drift Man, have been found must not remain unmentioned here. We know of them in Northern, Central, and Southern France, in the South of England, in the loess at Thiede, near Brunswick, and in Lower Austria, Moravia, Hungary, Italy, Greece, Spain, Portugal, North Africa, and Russia.

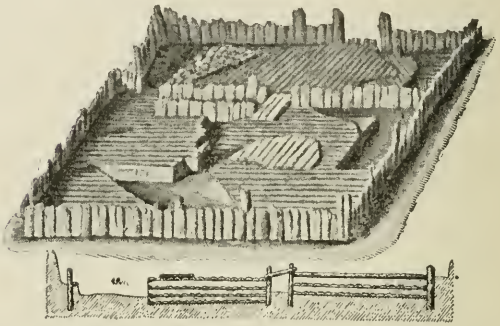


A HUT-CIRCLE OF THE BRONZE AGE

One of the earliest forms of habitation in Britain. From the British Museum "Guide to the Bronze Age."

It is of special importance to note that similar flint tools have also been found along with extinct land mammalia in the stratified drift of the Nerbudda valley, in South India, as the supposition more than suggests itself that Drift Man came to our continent with the Drift fauna that immigrated from Asia. The possibility that man also got from North Asia to North America with the mammoth during the Drift Period can no longer be dismissed after the results of palæontological research. It explains at once the close connection between the build of the American and the great Asiatic (Mongolian) races.

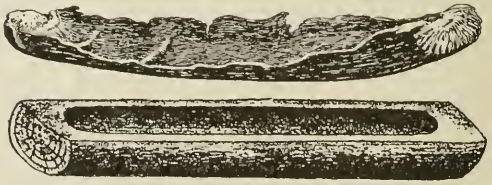
Stone implements of palæolithic form have been found in Drift strata in North America, and the same applies also, as we have seen, to South America. The best finds there were those made by Ameghino in the pampas formation of Argentina. Here marrow-bones, split, worked, and burnt, and jaws of the stag, glyptodon, mastodon, and toxodon have been repeatedly found along with flint



REMAINS OF A STONE AGE MANSION

These remains of a large pile hut discovered in Germany show that Stone Age Man had made good progress in building. The lower diagram shows a transverse section.

tools of palæolithic stamp; and Santiago Roth, who took part in these researches, supposes that fossil man in South America occasionally used the coats of mail of the gigantic armadillos as dwellings. But the civilisation of South American man is doubtless identical with that of European fossil man—tools and weapons of the stone types familiar in Europe, the



THE EARLIEST EFFORTS AT BOAT-BUILDING

The dug-out canoe, hollowed from a single trunk, was the far-off parent of the ocean-going ship. The upper picture represents a prehistoric canoe found in Sussex and the lower example is taken from a German specimen.

working of bones, the use of fire for cooking, and animal food, with the consequent special fondness for fat and marrow.



Professor JOHANNES RANKE

PRIMITIVE MAN IN THE PAST & THE PRESENT

TO the picture of Drift Man that has been drawn for us by the discoveries of human activity in deposits of uniform character and sharply defined age, the much richer but far less reliable finds in the bone caves add scarcely any entirely new touches. Von Zittel says :

The evidence of the caves is unfortunately shaken by the uncertainty that, as a rule, prevails with regard to the manner in which their contents were washed into them or otherwise introduced, and also with regard to the beginning and duration of their occupation ; moreover, later inhabitants have frequently mixed up their relics with the heritage of previous occupants.

This doubt strikes us particularly forcibly as regards man's co-existence with the extinct animals of the earlier periods of the Drift, the Preglacial and Interglacial Periods. On the other hand, the habitation of the caves by man during the Reindeer Period appears in many cases to be perfectly established, and, according to Von Zittel, the oldest human dwellings in caves, rock-niches, and river-plains in Europe belong for the most part to the Reindeer Period—that is, the second Glacial and, in particular, the Postglacial Period.

First Dwellers in Caves

In the caves there is also no domestic animal, and no pottery or trace of pot-sherds, in the best-defined strata where Drift Man has been found. In the Hohlefels cave, in the Ach valley in Swabia, a new utensil was found in the form of a cup for drinking purposes or for drawing water, made out of the back part of a reindeer's skull. Also a new tool in the form of a fine sewing-needle with eye, from the long bone of a swan, such as have also been found in the caves of the Périgord. Teeth of the wild horse and lower jaws of the wildcat, which are found in the caves, perforated for suspending either as ornaments or amulets, are also hitherto unknown, it appears, in the stratified Drift. As both animals are at a later period connected with the deity and with witchcraft, one could imagine that similar primitive religious ideas existed among the old cave-dwellers. In the stratum of the Reindeer Period at the Schweizerbild, near Schaffhausen, Nüesch found a musical instrument, "a reindeer whistle," and shells pierced for use as ornaments.

The finds in the French cave districts prove that man was able to develop certain higher refinements of life, even during the Drift in the real flint districts—where a very suitable material was at man's disposal in the flint that lay about everywhere or was easily dug up ; which was worked with comparative ease into much more perfect and efficient weapons and implements than those supplied by the wilder stretches of moor and fen of Germany, with their scarcity of flint.

Drift Man's Working Materials

If we compare the small, often tiny, knives and flint flakes from the German places with the powerful axes and lance-heads of those regions, it is self-evident how much more laborious life must have been for the man who used the former. What labour he must have expended in carving weapons and implements out of bone and horn, while flint supplied the others with much better and more lasting ones with less expenditure of time and trouble ! In this light a wealth of flint was a civilising factor of that period which is not to be under-estimated. In the flint districts not only are the stone implements better worked, answering in a higher degree the purpose of the weapon and the tool, but delight in ornament and decoration is also more prominent.

Life in the caves and grottos and under the rock shelters in the neighbourhood of rivers was by no means quite wretched. The remains left in the caves by their former inhabitants give almost as clear an idea of the life of man in those primeval times as the buried cities of Herculaneum and Pompeii do of the manners and customs of the Italians in the first century of the Christian era. The floors of these caves in which men formerly lived appear to consist entirely of broken bones of animals killed in the chase intermixed with rude implements

The Life in the Caves

and weapons of bone and unpolished stone, and also charcoal and large burnt stones, indicating the position of fireplaces. Flints and chips without number, rough masses of stone, awls, lance-heads, hammers, and saws of flint and chert lie in motley confusion beside bone needles, carved reindeer antlers, arrow-heads and harpoons, and pointed pieces of horn and bone; in addition to which are also the broken bones of the animals that served as food, such as reindeer, bison, horse, ibex, saiga antelope, and musk-ox. The reindeer supplied by far the greater part of the food, and must at that time have lived in Central France in large herds and in a wild state, all trace of the dog being absent.

Drift Man as Artist

Among these abundant remains of culture archæologists were surprised to find real objects of art from the hand of Drift Man, proving that thinking about his surroundings had developed into the ability to reproduce what he saw in drawing and modelling. The first objects of this kind were found in the caves of the Périgord. They are, on the one hand, drawings scratched on stones, reindeer bones, or pieces of horn, mostly very naïve, but sometimes really lifelike, chiefly representing animals, but also men; on the other hand imitations plastically carved out of pieces of reindeer horn, bones, or teeth. Such engravings also occurred on pieces of ivory, and plastic representations in this material have been preserved. On a cylindrical piece of reindeer horn from the cave excavations in the Dordogne is the representation of a fish, and on the shovel-piece of a reindeer's horn are the head and breast of an animal resembling the ibex. Illustrations of horses give faithful reproductions of the flowing mane, unkempt tail, and disproportionately large head of the large-headed wild horse of the Drift. The most important among these representations are such as endeavour to reproduce an historical event. An illustration of this kind represents a group consisting of two horses' heads and an apparently naked male figure; the latter bears a long staff or spear in his right hand, and stands beside a tree, which is bent down almost in coils in order to accommodate itself to the limited space, and whose boughs, indicated by parallel lines, show it to be a pine or fir. Connected with the tree is a system of vertical and horizontal lines, apparently representing a kind of hurdlework. On the other side of the same cylindrical piece are two bisons' heads. Doubtless this picture tells a tale; it is picture-writing in exactly the same sense as that of the North American Indians. Our picture already shows the transition to abbreviated picture-writing, as, instead of the whole animals—horses and bisons—only the heads are given. The message-sticks of the Australians bear certain resemblances; Bastian has rightly described them as the beginnings of writing.

Pictures from the Drift World

If we have interpreted them aright, the finds that have been made, with the tally from the source of the Schussen and the message-stick from the caves of the Dordogne, place the art of counting, the beginnings of writing, the first artistic impulses, and other elements of primitive culture right back in the Drift period.

"None of the animals whose remains lie in the Drift strata," says Oscar Fraas, "were tamed for the service of man." On the contrary, man stood in hostile relation to all of them, and only knew how to kill them, in order to support himself with their flesh and blood and the marrow of their bones. It was not so much his physical strength which helped man in his fight for existence, for with few exceptions the animals he killed were infinitely superior to him in strength; indeed it is not easy, even with the help of powder and lead, to kill the elephant, rhinoceros, grizzly bear, and bison, or to hunt down the swift horse and reindeer. It was a question of finding out, with his mental superiority, the beast's unguarded moments, and of surprising it or bringing it down in pits and snares. All the more wonderful does the savage of the European Drift Period appear to us, "for we see that he belongs to the first who exercised the human mind in the hard battle of life, and thereby laid the foundation of all later developments in the sense of progress in culture." And yet, in the midst of this poor life, a sense of the little pleasures and refinements of existence already began to develop, as proved by the elegantly carved and decorated weapons and implements, and there were even growing a sense of the beauty of Nature and the power of copying it. The bone needles with eyes and

The Emerging of the Human Mind



PRIMITIVE NATURE FOLK ENGAGED IN FISHING Mercier
From the painting by Ferdinand Cormon.

the fine awls are evidences of the art of sewing, and the numerous scrapers of flint and bone teach us that Drift Man knew how to dress skins for clothing purposes, and did it according to the method still used among the Esquimaux and most northern Indians at the present day. Spinning does not seem to have been known. On the other hand Drift Man knew how to twist cords, impressions and indentations of which are conspicuous on the bone and horn implements ; on which also thread-marks were imitated as a primitive ornament. Pottery was unknown to Drift Man. Indeed, even to-day the production of pottery is not a commonly felt want of mankind. The leather bottle, made of the skin of some small animal stripped off whole without a seam, turned inside out as it were, takes the place of the majority of the larger vessels ; on the other hand, liquids can also be kept for some time in a tightly-made wicker basket.

The art of plaiting was known to Drift Man. This is shown by the ornaments on weapons and implements, the plaiting-

needle from the find at the source of the Schussen, and the hurdlework represented on the message-stick mentioned above, which may be either a hurdle made of boughs and branches or a summer dwelling house. To these acquirements, based chiefly on an acquaintance with serviceable weapons and implements, is added the art of representing natural objects by drawing and carving. This results in the attempt to retain historical *momenta* in the form of abridged illustrations for the purpose of communicating them to others —incipient picture-writing. The tally shows the method of representing numbers —generally only one stroke each, but also two strokes connected by a line to form a higher unit. Of the art of building not a trace is left to us apart from the laying together of rough stones for fireplaces; nor have tombs of that period of ancient times been discovered.

The civilisation of Drift Man and his whole manner of life do not confront the present human race as something strange, but fit perfectly into the picture exhibited by mankind at the present day. Drift Man nowhere steps out of this frame. If



Mercier

EARLY AGRICULTURISTS, WITH IMPLEMENTS OF BONE, STONE, AND BRONZE
From the painting by Ferdinand Cormon.



AN EMIGRATION OF THE GAULS IN THE BRONZE AGE Mercier
From the painting by Ferdinand Cormon.

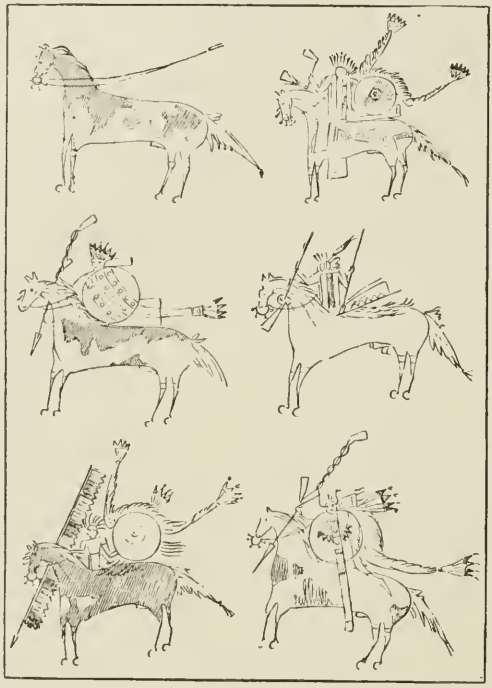
a European traveller were nowadays to come upon a body of Drift men on the borders of eternal ice, towards the north or south pole of our globe, nothing would appear extraordinary and without analogy to him ; indeed it would be possible for him to come to an understanding with them by means of picture-writing, and to do business with them by means of the tally.

The manner of life led by man beyond the borders of higher civilisation, especially under extreme climatic conditions, depends almost exclusively on his outward surroundings and the possibility of obtaining food. The Esquimaux, who, like Drift Man of Central Europe in former times, live on the borders of eternal ice with the Drift animals that emigrated thither,—the reindeer, musk-ox, bear, Arctic fox, etc.—are restricted, like him, to hunting and fishing, and to a diet consisting almost entirely of flesh and fat ; corn-growing and the keeping of herds of domestic animals being self-prohibitive. Their kitchen refuse exactly resembles that from the Drift. Before their acquaintance with the civilisation of modern Europe they used stone and

bone besides driftwood for making their weapons and implements, as they still do to a certain extent at the present day, either from preference or from superstitious ideas. Their binding material consisted of threads twisted from reindeer sinews, with which they sewed their clothes and fastened their harpoons and arrows, the latter resembling in form those of Drift Man. They knew no more than he the arts of spinning and weaving, their clothes being made from the skins of the animals they hunted; pots were unknown and unnecessary to them.

It has often been thought that we should have a definite criterion of the period if it could be proved that fresh mammoth ivory was employed at the particular time for making implements and weapons, or ornaments, carvings, and drawings. There can be no doubt that when Drift Man succeeded in killing a mammoth he used the tusks for his purposes. But on the borders of eternal ice, where alone we could now expect to find a frozen Drift Man, no conclusion could be drawn from objects of mammoth ivory being in the possession of a corpse to determine the great age of the latter. For the many mammoth tusks which have been found and used from time immemorial in North Siberia, on the New Siberian Islands, and in other places, are absolutely fresh, and are even employed in the arts of civilised countries in exactly the same way as fresh ivory. Under the name of "mammoth ivory" the fossil tusks dug up by ivory-seekers, or mammoth-hunters, form an important article of commerce.

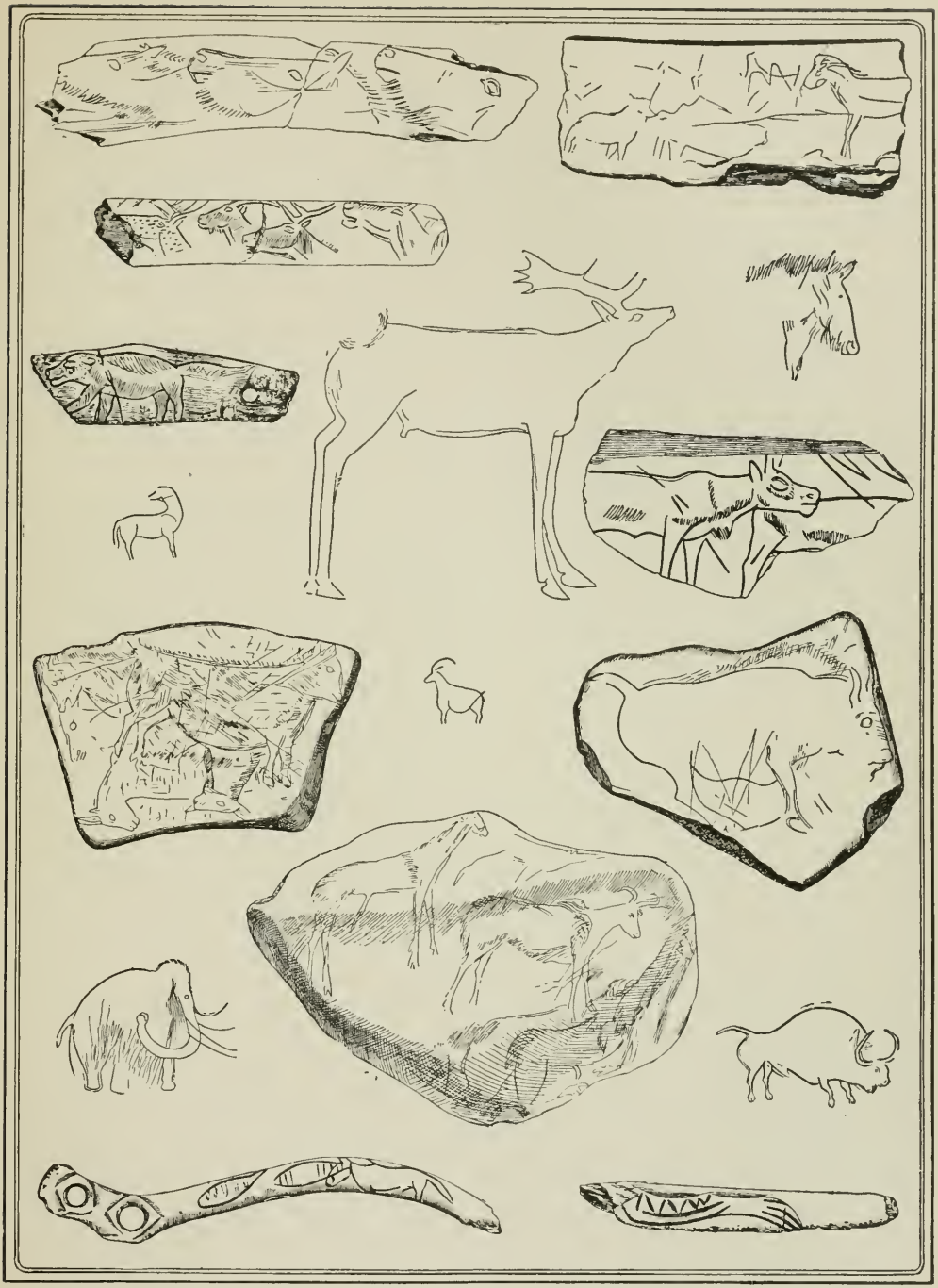
The same conditions as many parts of Northern Siberia still exhibit at the present day prevailed over the whole of Central Europe at the end of the Glacial Period and the beginning of the Postglacial Period. Here man lived on frozen ground on the borders of ice-fields with the reindeer and its companions, as he does to-day in Northern Asia, and here, too—as he does there to-day—he must have found the woolly-haired mammoth preserved by the cold in the ice and frozen ground. The Drift reindeer-men of Central Europe presumably searched for mammoth tusks just as much as the present reindeer-men in North Asia. The great field of mammoth carrion at Predmost was, therefore, a very powerful attraction, not only for the beasts of prey—chief among them wolves — but also for man.



PRIMITIVE ART OF OUR OWN DAY

The picture-writing of the American Indians in our own day offers an interesting parallel to that of the primitive peoples of the remotest past. The Pawnees decorate their buffalo robes with such drawings as these, representing a procession of medicine men, the foremost giving freedom to his favourite horse as a sacrifice to the Great Spirit.

In France especially many primitive works of art of the "Ivory Epoch" have been found, and even the nude figure of woman is not wanting; but no proof is given that these carvings belong to the time when the mammoth still lived. Much sensation has been caused by an engraving on a piece of mammoth ivory representing a hairy mammoth with its mane and strongly-curved tusks. This illustration has been taken as unexceptionable proof that the artist of the Drift Period who did it saw and portrayed the mammoth alive. But could the mammoth hunter Schumachow —the Tunguse who, in 1799, discovered, in the ice of the peninsula of Tumys Bykow at the mouth of the Lena, the mammoth now erected in the collection at the St. Petersburg Academy [see page 123]—have pictured the animal otherwise when it was freshly melted out of the ice? And the Madelaine cave in the Périgord, where the piece of ivory with the picture of the mammoth was found, certainly belongs to the Reindeer Period. Had we not independent proofs that



THE EARLIEST ART: MANKIND'S FIRST EFFORTS IN PICTURE-MAKING

These illustrations are of engravings on stone and bone and scratchings on rocks made by prehistoric man, chiefly in France. The figures of the reindeer and those of the mammoth and the bison, the two latter found at Dordogne, are astonishingly good, and indicate genuine power of draughtsmanship at a remote period of human life.

Drift Man lived in Central Europe—for instance, at Taubach — with the great extinct pachydermata, neither the finds in the "loess" near Predmost, nor the articles of ivory, nor the illustration of the mammoth itself, could prove it. They furnish absolute proof of the existence of Drift Man only back to the Reindeer Period. To decide whether a corpse frozen in the stone-ice belonged to a Drift Man, the examination of the corpse itself, its skull, bones, and soft parts, would no more suffice than clothing, implements, and ornament. For at least so much is confidently asserted by many palæontologists, that all the skulls and bones hitherto known to have been ascribed to Drift Man by the most eminent palæontologists, geologists, and anthropologists, cannot be distinguished from those of men of the present day. Von Zittel, the foremost scholar in the field of palæontology in Germany, says :

Drift Man Compared with Modern Man



PRIMITIVE PEOPLE OF TO-DAY

Until they came in touch with European travellers the Esquimaux were in precisely the same condition as Drift Man : they were living in the Ice Age. They are but little more advanced now, and the difference between them and prehistoric men is slight. This is a group of young Esquimau women.

The only remains of Drift Man of reliable age are a skull from Olmo, near Chiana, in Tuscany; a skull from Egisheim, in Alsace; a lower jaw from the Naulette cave near Furfooz, in Belgium; and a fragment of jaw from the Schipka cave in Moravia. This material is not sufficient for determining race, but all human remains of reliable age from the drift of Europe, and all the skulls found in caves, agree in size, form, and capacity with *Homo sapiens*, and are well formed throughout. In no way do they fill the gap between man and ape.

"On the other hand," writes Dr. Chalmers Mitchell, "a large majority of modern anatomists and palæontologists accept the antiquity of such skulls as the Neanderthal specimen, and agree that these point to the existence of a human race inferior to any now existing. This race comprised powerfully-built individuals, with low foreheads, prominent, bony ridges above the eyes, and retreating chins. The radius and ulna were unusually divergent, so that the forearms must have been heavy and clumsy. The thigh-bones were bent and the shin-bones short, so that the race must have been bow-legged and clumsy in gait.

"The intermediate position of these primitive types has received extraordinary confirmation by the discovery of what may truly be called the link, no longer missing, between man and the apes. In 1894, Dr. Eugene Dubois discovered in the Island of Java in a bed of volcanic ashes containing the remains of Pliocene animals the roof of a small skull, two grinding-teeth, and a diseased femur. These remains indicate an animal which, when erect, stood not less than 5 ft. 6 in. high. The teeth and thigh-bones were very human, and the skull, although very human, had prominent eyebrow ridges like those of the Neanderthal type, and a capacity of about 1,000 cubic centimetres —that is to say, much greater than that of the largest living apes, and falling short by about 100 cubic centimetres of the largest skull capacities of existing normal human beings. This creature, regarded at first by some anatomists as a degenerate man, by others as a high ape, has now been definitely accepted as a new type of being, intermediate between man and the apes and designated as *Pithecanthropus erectus*."

A Type Between Man and Ape?

There is no doubt that Asia, Europe, North Africa, and North America, so far as their ice-covering allowed of their being inhabited, form one continuous region for the distribution of Palæolithic Man, in which all discoveries give similar results. In this vast region the lowest



THE HOMES OF PRIMITIVE PEOPLE OF THE PRESENT DAY

There are people still living in dwelling-places of prehistoric type. This photograph of Esquimau stone and turf huts, in Greenland, shows exactly the kind of dwellings used by prehistoric men in the Ice Age.

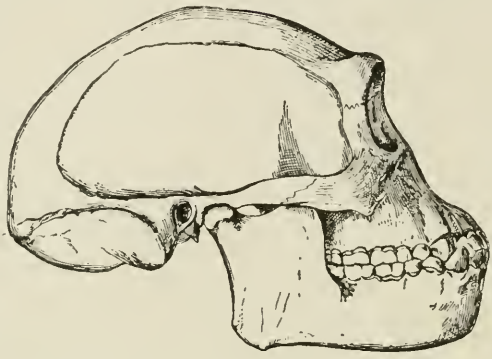


THE GRADUAL EXTINCTION OF PRIMITIVE PEOPLES

The Yukaghirs, natives of Siberia, a division of the Mongolic family, were formerly a wide-spread race, and, according to their national tradition, were so numerous that "the birds flying over their camp fires became blackened with smoke." The Jesup Expedition found them reduced to 700 in number. Hunger had forced some of them to cannibalism and suicide. They are a primitive people, but considerably superior to the Esquimaux.

and oldest prehistoric stratum that serves as the basis of historical civilisation is the homogeneous Palæolithic stratum. In the Drift Period, Palæolithic Man penetrated into South America, as into a new region, with northern Drift animals. In Central and South Africa and Australia, Palæolithic Man does not yet seem to be known. All the more important is it that in Tasmania Palæolithic conditions of civilisation existed until the middle of the last century.

The palæontology of man has hitherto obtained good geological information of the oldest Palæolithic culture-stratum of the Drift in only a few parts of the earth, and only in Tasmania does this oldest stratum appear to have cropped out free, and still uncovered by other culture strata, down to our own times. Otherwise it is everywhere overlaid by a second, later culture-stratum of much greater thickness, which, although opened up in almost innumerable places, is not spread over the whole earth as is the Palæolithic stratum. As opposed to the earliest Stone Age of the Drift, which we have come to know as the Palæolithic Period, this has been called the Later Stone Age or Neolithic Period.



A CREATURE BETWEEN APE AND MAN
The skull of the Fossil Ape-man found in 1894, in the island of Java; restored by Dr. Eugene Dubois.

Backward Races of Europe

The Neolithic Period is also ignorant of the working of metals; for weapons and implements, stone is the exclusive hard material of which the blades are made. But geologically and palæontologically the two culture-strata are widely and sharply separated.

As regards Europe, and a large part of the other continents, the second stratum of the culture of the human race still lies at prehistoric depth. But in other extensive parts of the earth the stratum of Neolithic culture was not covered by other culture-strata until far into the period of written history. Even a large part of Europe was still inhabited by history-less tribes of the later Stone Age at the time when the old civilised lands of Asia and of Africa, and the coasts of the Mediterranean, had everywhere—on the basis of the same Neolithic elements, with the increasing use of metals—already risen to that higher stage of civilisation which, with the historical written records of Egypt and Babylonia, forms the basis of our present chronology.

When these civilised nations came into direct contact with the more remote nations of the Old World, they found them, as we have said, still, to a certain extent, at the Neolithic stage of civilisation, just as, when Europeans settled in America, the great majority of the aborigines had not yet passed the Neolithic stage, at which, indeed, the lowest primitive tribes of Central Brazil still remain. Australia, and a large part of the island world of the South Sea, had not yet risen above the Neolithic stage (Tasmania, probably, not even above the Palæolithic) when they were discovered. There the Stone Age, to a certain extent, comes down to modern times; likewise in the far north of Asia, in Greenland, in the most northern parts of America, and at the south point of the New Continent among the Fuegians.

The men of the later Stone Age are the ancestors of the civilised men of to-day. Classical antiquity among Greeks and Romans had still a consciousness of this, at least partly; it was not entirely forgotten that the oldest weapons of men did not consist of metal, but of stone, and even inferior material. The worked stones which the people then, as now, designated as weapons of the deity, as lightning-stones or thunderbolts, were recognised by keener-sighted men as weapons of primeval inhabitants of the land.

What the Kitchen Middens Tell Us

The "kitchen middens" on the Danish coasts mark places of more or less permanent settlement, consisting of more or less numerous individual dwellings. From these middens a rich inventory of finds has been made, affording a glimpse of the life and doings of those ancient times. The heaps consist principally of thousands upon thousands of opened shells of oysters, cockles, and

other shellfish still eaten at the present day, mingled with the bones of the roe, stag, aurochs, wild boar, beaver, seal, etc. Bones of fishes and birds were also made out, among the latter being the bones of the wild swan and of the now extinct great auk, and, what is specially important in determining the geological age of these remains, large numbers of the bones of the capercailzie. Domestic animals are absent with the exception of the dog, whose bones, however, are broken, burnt, gnawed in the same way as those of the beasts of the chase. Everything proves that on the sites of these middens there formerly lived a race of fishers and hunters, whose chief food consisted of shellfish, the shells of which accumulated in mounds around their dwellings. Proofs of agriculture and cattle-rearing there are none; the dog alone was frequently bred not only as a companion in the chase, but also for its flesh.

The state of civilisation of the old Danish shellfish-eaters was not quite a low one in spite of its primitive colouring, and in essential points was superior to that of Palæolithic Man. Not only had they tamed a really domestic animal, the dog, but they made and used clay vessels for cooking and storing purposes. The cooking was done on fireplaces. They could work deer-horn and bone well. Of the former hammer-axes with round holes were made, and of animal bones arrow-heads, awls, and needles, with the points carefully smoothed. Small bone combs appeared to have served not so much for toilet purposes as for dividing animal sinews for making threads, or for dressing the threads in weaving.

In the way of ornaments there were perforated animal teeth. The fish remains found in the middens belong to the plaice, cod, herring, and eel. To catch these



EUROPE IN THE ICE AGE

The map illustrates the extent of the Ice Age in Europe. It will be noticed that in England the ice-cap did not extend south of the position of London though it occurred much further south in the mountain regions of the Pyrenees, the Alps, Tyrol, the Carpathians and the Caucasus. The dark portions of the map represent the extent of the ice

deep-sea fish the fishermen must have gone out to sea, which implies the possession of boats of some kind. Nor was only small game hunted, but also large game. Ninety per cent. of the animal bones occurring in the shell-mounds consist of those of large animals, especially the deer, roe, and wild boar. Even such dangerous adversaries as the aurochs, bear, wolf, and lynx were killed, likewise the beaver, wildcat, seal, otter, marten, and fox. The very numerous fragments of clay vessels belong partly to large pot-like vessels without handles and with pointed or flat bottoms, and partly to small oval bowls with round bottoms. All vessels were made with the free hand of coarse clay, into which small fragments of granitic stone were kneaded; as ornament they have in a few cases incisions or impressions, mostly made with the finger itself on the upper edge.

Drift Man and His Adversaries

The great importance of the Danish middens in the general history of mankind is due to the fact that their age is geologically established, so that they can serve as a starting-point for chronology. It is to Japetus Steenstrup that the early history of our race owes this chronological fixing of an initial date.

The earliest inhabitants of the North of Europe during the Stone Age, as recorded by these kitchen-middens of the Danish period, were scarcely superior to Palæolithic Man in civilisation, judging from outward appearances. But a closer investigation taught us that, in spite of the poverty of their remains, a higher development of civilisation is unmistakable. And this superiority of the Neolithic over the Palæolithic Epoch becomes far more evident if we take as our standard of comparison, not the poor fisher population, who probably first reached the Danish shores as pioneers, but the Neolithic civilisation that had been fully developed in sunnier lands and followed closely upon these trappers or squatters. Next to hunting and fishing, cattle-breeding and agriculture are noticeable as the first elements of Neolithic civilisation, and in connection with them the preparation of flour and cooking; and as technical arts, chiefly carving and the fine working of stone, of which weapons and the most various kinds of tools were made; with the latter wood, bone, deer-horn, etc., could be worked. The blades are no longer sharpened merely by chipping, but by grinding, and are made in various technically perfect forms. Special importance was attached to providing them with suitable handles, for fixing which the stone implement or weapon was either provided with a hole, or, as in America especially, with notches or grooves.

The First Elements of Civilisation

In addition to these, there are the primitive arts of man—the ceramic art, spinning, and weaving. In the former, especially, an appreciation of artistic form and decoration by ornament is developed. The ornament becomes a kind of symbolical written language, the eventual deciphering of which appears possible in view of the latest discoveries concerning the ornamental symbolism of the primitive races of the present day. Discoveries of dwellings prove an advanced knowledge of primitive architecture; entrenchments and tumuli acquaint us with the principles of their earthworks; and the giant chambers, built of colossal blocks of stone piled upon one another, prove that the builders of those times were not far behind the much-admired Egyptian builders in transporting and piling masses of stone. The burials, whose ceremonies are revealed by opened graves, afford a glimpse of the mental life of that period. From the skulls and skeletons that have been taken from the Neolithic graves, science has been able to reconstruct the physical frame of Neolithic Man, which has in no way to fear comparison with that of modern man. Of the ornaments of the Stone Age the most important and characteristic are perforated teeth of dogs, wolves, horses, oxen, bears, boars, and smaller beasts of prey. How much in favour such ornaments were is proved by the fact that even imitations or counterfeits of them were worn. Numerous articles of ornament, carved from bone and deer-horn, were universal: ornamental plates and spherical, basket-shaped, square, shuttle-like, or chisel-shaped beads were made of these materials and formed into chains.

The Mental Life of Ancient Days

In the Swiss lake-dwellings of the Stone Age have been found skilfully carved ear-drops, needles with eyes, neat little combs of boxwood, and hairpins, some with heads and others with pierced side protuberances. Remains of textile fabrics, even finely twilled tissue, and also leather, were yielded by the excavations of the



THE ICE AGE IN THE PRESENT DAY: AN ESQUIMAU WATCHING A SEAL HOLE

lake-dwellings of that period, so that we have to imagine the inhabitants adorned with clothes of various kinds.

What raises man of the later Stone Age so far above Palæolithic Man is the possession of domestic animals and the knowledge of agriculture. As domestic animals of the later Stone Age we have proof of the dog, cow, horse, sheep, goat, and pig. Among the animals that have attached themselves to man as domestic, the first and oldest is undoubtedly the dog. It is found distributed over the whole earth, being absent from only a few small islands. Among many races the dog was, and is still, the only domestic animal in the proper sense of the word. This applies to all Esquimau tribes, to the majority of the Indians of North and South America, and to the continent of Australia.

Man's First and Oldest Animal Friend

We have no certain proofs that Palæolithic Man possessed the dog as a domestic animal. In the Somme valley, at Taubach, and at the source of the Schussen, bones of the domestic dog are absent. And yet, among Drift fauna in caves remains of dogs have been repeatedly met with, which have been claimed to be the direct ancestors of the domestic dog. The dog's attachment to man may have taken place at different times in different parts. Man and dog immigrate to South America with the foreign Northern fauna simultaneously—in a geological sense—during the Drift. In Australia, man and dog (dingo), as the most intimate animal beings, are opposed to an animal world that is otherwise anomalous and, to the Old World, quite antiquated; probably man and dog also came to Australia together. We know of fossil remains of the dingo from the Drift, but no reliable finds have yet proved the presence of man during that period.

In the later Stone Age the dog already occurs as the companion of man wherever it occurs in historic times. In Europe its remains have been found in the Danish kitchen-middens, in the northern Neolithic finds, in the lake-dwellings of Switzerland, in innumerable caves of the Neolithic Period, in the terramare of Upper Italy, etc. It was partly a comparatively small breed, according to Rütimeyer similar to the "wachtelhund" (setter) in size and build. Rütimeyer calls this breed the lake-dwelling dog, after the lake-dwellings, one of the chief places where it has been found. Like all breeds of animals of primitive domestication, the dog at this period, according to Nehring, is small—stunted, as it were. With the progress of civilisation the dog also grows larger.

The Dog in the Stone Age

In the later prehistoric epochs, beginning with the so-called "Bronze" Period, we find throughout almost the whole of Europe a rather larger and more powerful breed with a more pointed snout—the Bronze dog—whose nearest relative seems to be the sheep-dog. At the present day the domestic dog is mostly employed for guarding settlements and herds and for hunting. In the Arctic regions the Esquimaux also use their dogs, which are like the sheep-dog, for personal protection and hunting; they do particularly good service against the musk-ox, while the wild reindeer is too fast for them. But the Esquimau dog is chiefly used for drawing the sledge, and, where the sledge cannot be used, as a beast of burden, since it is unable to carry fairly heavy loads. In China and elsewhere, as formerly in the old civilised countries of South America, the dog is still fattened and killed for meat. So that the domestic dog serves every possible purpose to which domestic animals can be put, except, it seems, for milking, although this would not be out of the question either. The dog was also eaten by man in the later Stone Age, as is proved by the finds in his kitchen refuse. The reindeer is now restricted to the Polar regions of the Northern Hemisphere — Scandinavia, North Asia, and North America, whereas in the Palæolithic Period it was very numerous throughout Russia, Siberia, and temperate Europe down to the Alps and Pyrenees. It does not seem ever to have been definitely proved that the reindeer existed in the Neolithic Period of Central and Northern Europe, although according to Von Zittel it lived in Scotland down to the eleventh century and in the Hercynian forest until the time of Cæsar. The earliest definite information we appear to have of the tamed reindeer, which at the present day is a herd animal with the Lapps in Europe, and with the Samoyedes and Reindeer Tunguses in Asia, is found in Ælian, who speaks of the Scythians having tame deer.

Great Value of the Dog to Man

Oxen at present exist nowhere in the wild state, while the tame ox is distributed as a domestic animal over the whole earth, and has formed the most various breeds. In the European Drift a wild ox, the urus, distinguished by its size and the size of its horns, was widely distributed, and it still lived during the later Stone Age with the domestic ox. In the later prehistoric ages, and even in historic times, the urus still occurs as a beast of the forest.

In the later Stone Age the horse, too, is no longer merely a beast of the chase, but occurs also in the tame state. During the Drift the horse lived in herds all over Europe, North Asia, and North Africa. From this Drift horse comes the domestic horse now found all over the earth. Even the wild horses of the Drift exhibit such considerable differences from one another that, according to Nehring's studies, these are to be regarded as the beginning of the formation of local breeds. The taming and domestication of the wild horse of the Drift, which began in the Stone Age, led to the domestic horse being split up later into numerous breeds.

The Taming of the Wild Horse

The old wild horse was comparatively small, with a large head; a similar form is still found here and there on the extensive barren moors of South Germany in the moss-horse, or, as the common people call it, the moss-cat. At the present day the genus of the domestic horse falls, like the ox, into two chief breeds—a smaller and more graceful Oriental breed, and a more powerful and somewhat larger Western breed with the facial bones more strongly developed. The horse of the later Stone Age of Europe exhibits only comparatively slight differences from the wild horse; it is generally a small, half-pony-like form with a large head, evidently also a stunted product of primitive breeding under comparatively unfavourable conditions. Two species extant in the Stone Age still live wild on the steppes of Central Asia at the present day; one of them also occurs as a fossil in the European Drift, although only rarely. That the ass occurred in the European Drift is probable, but not proved. It has not yet been found in the Neolithic Period of Europe.

A survey of the palæontology of the domestic animals shows that they come from wild Drift species which—at any rate, as regards the ox, horse, and dog—are now extinct, so that these most important domestic animals now exist only in the tame state. Some of the domestic animals came from Asia, and, according to Von Zittel, were imported into Europe from there; this applies to the peat-ox and the domestic goat and pig. The Asiatic origin of the domestic horse and sheep is probable, but not proved; the sheep is found wild in South Europe as well as in Asia. The tarpan, a breed of horse very similar to the wild horse, lives in herds independent of man on the steppes of Central Asia. This has been indicated as being probably the parent breed of the domestic horse, and the origin of the latter has accordingly also been traced to Asia.

Did the Horse come from Asia?

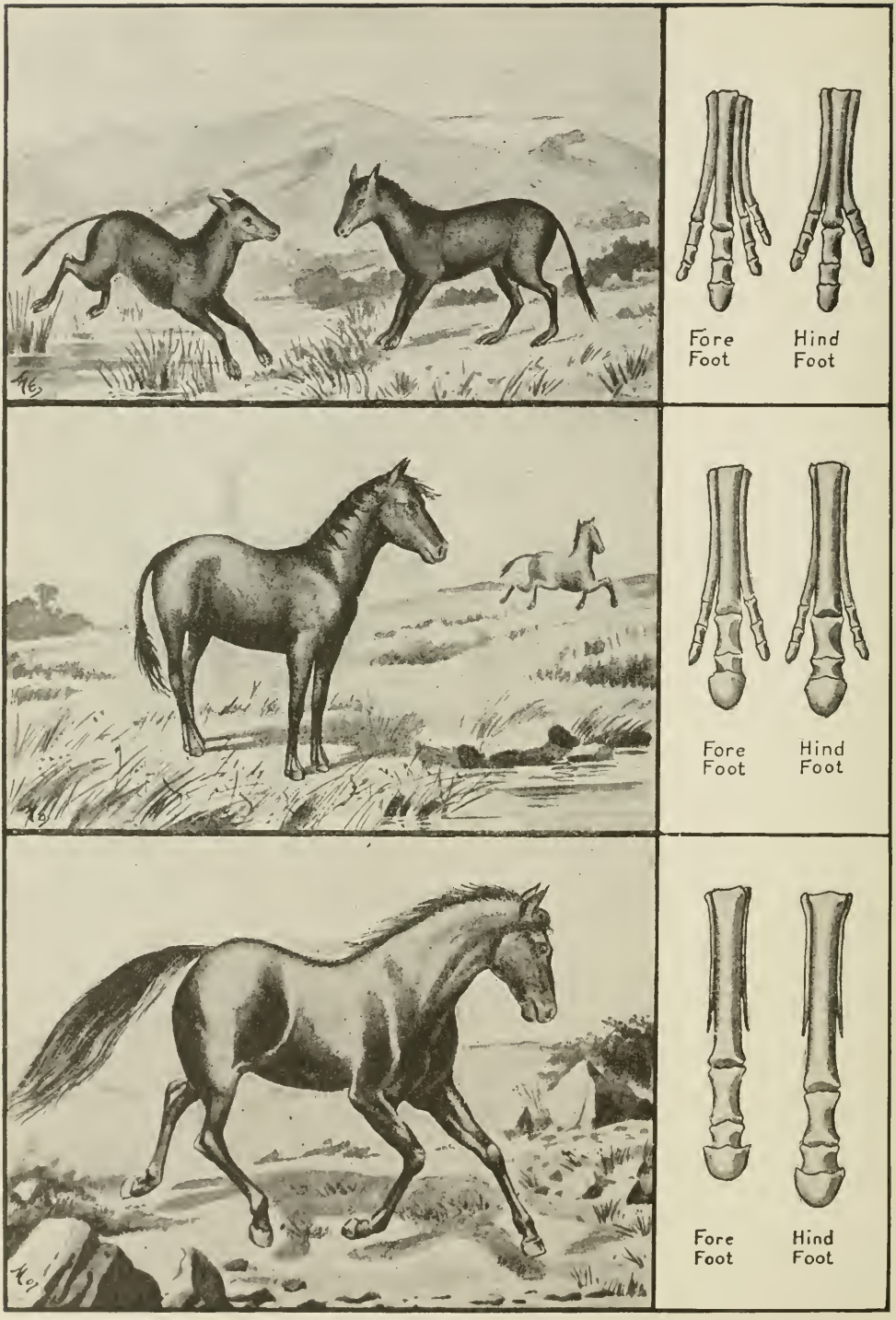
One thing is certain: a considerable number of animal forms that co-exist with man in Europe at the present day—for instance, almost all the forms of our poultry and the fine kinds of pigs and sheep—have originally come from Asia. Our investigations show a similar state of things even in the Neolithic Period.

In the North of Europe, which has furnished us with our standard information regarding the Neolithic culture-stratum. the certain proofs that have hitherto been found of agriculture and the cultivation of useful plants having been practised at that time (to which civilisation owes no less than to the breeding of useful tame animals) consist not so much of plant remains themselves as of stone hand-mills and spinning and weaving implements, which indicate the cultivation of corn and flax.

Our chief knowledge of Neolithic agriculture and plant culture has been furnished by the lake-dwellings, especially those of Switzerland, which have preserved the picture of the Neolithic civilisation of Central Europe, sketched for us, as it were, in the North, in its finest lines.

History in the Lake Dwellings

So far we can prove the cultivation of the following useful plants in the later Stone Age; their remains were chiefly found, as we have said, well preserved in the Stone Age lake-dwellings of Switzerland, which have been described in classical manner by Oswald Heer. Of cereal grasses Heer determined, in the rich Stone Age lake-dwellings of Wangen, on Lake Constance, and Robenhausen, in Lake Pfäffikon, three sorts of wheat and



THE DEVELOPMENT OF THE HORSE

The horse which was common in the Stone Age was a wild ancestor of our own domestic horse, but not quite so large or so strong as the average well-bred creature familiar in our modern life. Its remotest ancestor was the Hyracotherium, or Orohippus, while an intermediary stage was that of the Hypparion, or Protohippus, in which, as shown in the diagram, the change from the foot to the hoof had advanced to a very great extent.

two varieties of barley—the six-rowed and two-rowed. Flax was also grown by Neolithic Man. This was, it seems, a rather different variety from our present flax, being narrow-leaved, and still occurs wild, or probably merely uncultivated, in Macedonia and Thracia. Flax has also been found growing wild in Northern India, on the Altai Mountains, and at the foot of the Caucasus.

The common wheat occurring in the lake-dwellings of the Stone Age is a small-grained but mealy variety; but the so-called Egyptian wheat with large grains also occurs.

Traces of regular gardening and vegetable culture are altogether wanting. Some finds, however, seem to indicate primitive arboriculture, apples and pears having been found dried in slices in the lake-dwellings of the Stone Age; there even appears to be an improved kind of apple besides the wild-growing crab. But although they are chiefly wild unimproved fruit-trees of whose fruit remains have been found, we can imagine that these fruit-trees were planted near the settlements, and the great nutritious and health-giving properties of the fruit, as a supplement to a meat fare, must have been all the more appreciated owing to the lack of green vegetables. The various wild cherries, plums, and sloes were eaten, as also raspberries, blackberries, and strawberries. Beechnut and hazelnut appear as wild food-plants.

Gardening in the Stone Age

The original home of the most important cereals—wheat, spelt, and barley—is not known with absolute certainty; probably they came from Central Asia, where they are said to be found wild in the region of the Euphrates. The real millet came from India; peas and the other primeval leguminous plants of Europe, such as lentils and beans, came likewise from the East, partly from India. So that, apart from flax, which probably has a more northern home, the regular cultivated plants of the Stone Age of Central Europe—cereal grasses, millet, and lentils—indicate Asia as their original home. We have therefore a state of things similar to that observed in the case of the domestic animals.

The potter's art was probably entirely unknown to Palæolithic Man, for in none of the pure Drift finds have fragments of clay vessels been found. So where clay vessels or fragments of them occur, they appear as the proof of a post-Drift period. On the other hand, pottery was quite general in the Neolithic Age of Europe. Still, the need of clay vessels is not general among all races of the earth even at the present day; up to modern times there were, and still are, races and tribes without pots. From their practices it is evident that the European Stone men of the Drift could also manage to prepare their food, chiefly meat, by fire without cooking vessels. The Fuegians lay the piece of meat to be roasted on the glowing embers of a dying wood fire, and turn it with a pointed forked branch so as to keep it from burning. Meat thus prepared is very tasty, as it retains all the juice and only gets a rind on the top, and the ashes that adhere to it serve as seasoning in lieu of salt. On a coal fire not only can fish be grilled, stuck on wooden rods, but whole sheep can be roasted on wooden spits, precisely as people have the dainty of roast mutton in the East. To these may be added a large number of other methods of roasting, and even boiling, without earthen or metal vessels, which are partly vouched for by ethnography and partly by archæology, and some of which, like the so-called "stone-boiling," are still practised at the present day.

Beginning of the Potter's Art

Although, according to this, pottery is not an absolute necessary of life for man, yet it is certain that even those poorly equipped pioneers who first settled in Denmark in the Pine Period, in spite of their having an almost or quite exclusive meat fare, had clay pottery in general use for preparing their food, and probably also for storing their provisions. As we have already shown, the remains that have been preserved in the kitchen-middens are the oldest that have been found in Denmark. Simple and rude as the numerous pot-sherds that occur may appear, they are of the highest importance on account of the proof of their great age. Unfortunately, as we have already seen, not a single perfect vessel has come to light. The fragments are very thick, of rough clay with bits of granite worked in, and are all made by hand without the use of the potter's wheel. The pieces partly indicate large vessels, some with flat bottoms, and others with the special characteristic of pointed bottoms, so that the vessel could not be stood up as it was.

No Perfect Pottery in the Stone Age



MAN'S FIGHT WITH THE GIANT ANIMALS OF THE ANCIENT WORLD
From the painting, "The Slaughter of a Mammoth," by V. M. Vasnetzon, now in the Russian Historical Museum at Moscow

Smaller bowls, frequently of an oval form, also occurred with rounded bottoms, so that they also could not stand by themselves. It is very important to note that on these fragments of pottery we find only extraordinarily scanty and exceedingly simple ornamental decorations, consisting merely of incisions, or impressions made with the fingers, on the upper edge.

We shall see how far this oldest pottery of the Stone Age is distinguished by its want of decoration from that of the fully-developed Stone Age. But it is very important to notice that this rudest mode of making clay vessels, which we here see forming the beginning of a whole series that rises to the highest pitch of artistic perfection, remained in vogue not only during the whole Stone Age, but even in much later times.

It is true that in the fully developed neolithic Stone Age of Europe the clay pottery is also all made by hand, without the potter's wheel, the oldest and rudest forms still occurring everywhere, as we have said; but besides these a great variety is exhibited in the size, form, and mode of production of the pottery. The clay is often finer, and even quite finely worked and smoothed, and the vessels have thin sides and are burnt right through. The thick fragments are generally only burnt outside, frequently only on one side, and so much that the clay has acquired a bright red colour, whereas the inside, although hard, has remained only a greyish black. We have numerous perfectly preserved vessels of the later Neolithic Age. They are frequently distinguished by an artistic finish and beauty of form, and on their surfaces we find ornaments incised or imprinted, but rarely moulded on them, which, although the style is only geometrical, cannot be denied a keen sense of beauty and symmetry. The clay vessels also show the beginning of coloured decoration. The incised strokes, dots, etc., are often filled out with white substance (chalk or plaster), which brings the patterns out into bold ornamental relief from the black or red ground of the surface.

Stone Age Potter's Handwork

After that it is no wonder that pottery advanced to the real coloured painting of the vessels during the Neolithic Period, at least in some places.

On these vessels the handle now appears, in its simplest form as a wart-like or flatter projection from the side of the vessel, pierced either vertically or horizontally with a narrow opening just large enough to admit of a cord being passed through. Other handles, just like those in use at the present day, are bowed out broad, wide, and high for holding with the hand. These generally begin quite at the top, at the rim of the vessel, and are continued from there down to its belly, whereas the first-mentioned are placed lower, frequently around the greatest circumference of the vessel.

Growth of Artistic Taste

There is no doubt whatever that in the main these clay vessels were made on the spot where we find their remains at the present day. This easily explains the local peculiarity that we recognise in various finds, by which certain groups may be defined as more or less connected with one another. Different styles may be clearly distinguished by place and group. But, this notwithstanding, wherever we meet with neolithic ceramics, they cannot conceal their homogeneous character. In spite of all peculiarities this general uniform style of the ceramics of the Stone Age, which we can easily distinguish and determine even under its various disguises, goes over the whole of Europe.

In finds that lie nearer to the old Asiatic centres of civilisation and to the coasts of the Mediterranean—as, for instance, at Butmir—the vessels are in part better worked, and the ornaments are richer and more elegant, and the spirals more frequent and more regular, and are sometimes moulded on, and sometimes, as we have mentioned, even painted in colour. But the general character remains unmistakably Neolithic, and may be found not only on the European coasts of the Mediterranean and the islands of the Ægean Sea, but in certain respects also in Mesopotamia and Egypt. The oldest Trojan pottery also exhibits unmistakable points of agreement with it.

The Proofs of Man's Mental Development

Not only the stone weapons and implements, but, as far as we can see, even the remains of the oldest ceramics, show that uniform development of the culture of the Neolithic Period which proves a like course of mental development in mankind.



Professor JOHANNES RANKE

THE HOME LIFE OF PRIMITIVE FOLK

A PICTURE, of unequalled clearness of delineation, of the general conditions of the life and culture of Central European Man during the Neolithic Period, was given, according to the results of the celebrated researches of Ferdinand Keller and his school of Swiss archæologists, by the lake-dwellings in the Alpine lowlands.

What the Lake Dwellings Tell

Whereas in cave districts the caves and grottos often served the men of the later Stone Age as temporary and even as permanent winter dwellings, in the watery valleys of Switzerland the Neolithic population built its huts on foundations of piles in lakes and bogs. In that period we have to imagine the Alpine lowlands still extensively covered with woods and full of wild beasts; at that time the huts standing on piles in the water must have afforded their inhabitants a security such as scarcely any other place could have given. The first founders and inhabitants of settlements of pile-dwellings in Switzerland belong to the pure Stone Period. In spite of their lake-dwellings the old Neolithic men of Switzerland appear to have possessed almost all the important domestic animals, but they also knew and practised agriculture. They lived by cattle-rearing, agriculture, hunting, and fishing, and on wild fruit and all that the plant world freely offered in the way of eatables. Their clothing consisted partly of skins, but partly also of stuffs, the majority of which seem to have been prepared from flax.

Beginnings of a Social Order

The endeavour of the settlers to live together in lasting homes protected from surprises, and in large numbers, is an unmistakable proof that they were aware of the advantages of a settled mode of life, and that we have not to imagine the inhabitants of the pile-dwellings as nomadic herdsmen, and still less as a regular race of hunters and fishermen. The permanent concentration of a large number of individuals at the same point, and of hundreds of families in neighbouring inlets of the lakes, could not have taken place if there had not been through all the seasons a regular supply of provisions derived principally from cattle-rearing and agriculture, and if there had not existed the elements of social order. Even the establishment of the lake-settlement itself is not possible for the individual man; a large community must have here worked with a common plan and purpose. Herodotus describes a pile-village in Lake Prosias, in Thracia, which was inhabited by Pæones, who defended it successfully against the Persian general Megabazos. The scaffold on which the huts were built stood on high piles in the middle of the lake; it was connected with the bank only by a single, easily removable bridge. Herodotus says:

> The piles on which the scaffolds rest were erected in olden times by the citizens in a body; the enlargement of the lake-settlement took place later, according as it was necessitated by the formation of new families.

The Lake Dweller At Home

According to the large number of lake-dwellings of the Stone Age in the Alpine lowlands, and according to the large quantity of products of primitive industry that have been found there, centuries must have elapsed between the moment when the first settlers rammed in the piles on which to build their dwellings and the end of the Stone Period.

The huts of the settlements of the Stone Age were partly round and partly quadrangular, and, like the pile-hut discovered by Frank near Schussenried, were divided into two compartments—one for the cattle, and the other, with a hearth built of stones, for the dwelling of man. The floor of the hut was made of round timber with a mud foundation, and perhaps also with a mud flooring; in Frank's hut the walls were formed of split tree-trunks, standing vertically with the split sides turned inward, firmly put together between corner posts. The round huts had walls of roughly intertwined branches, covered with clay inside and out; of this clay-plaster numerous pieces have been preserved, hardened by fire, with the marks

of the branches. The pile huts of the lakes were connected with the water by block or rung ladders. Victor Cross found such a ladder in one of the oldest stations; it consisted of a long oak pole provided at fairly regular intervals with holes in which the rungs were inserted.

Of special importance in estimating the degree of civilisation attained by the lake-dwellers of the Stone Age are the remains of spinning and weaving implements and of webs and textile fabrics, plaited work, etc. Flax has been found wound on the implements made of ribs, that we mentioned above as flax combs; we have also mentioned the fixing of blades with flax, or threads made of it, and the numerous wide and narrow nets made of threads. For spinning the thread, spindles were used just like those of the present day, a spindle-stick of wood being fastened into a spinning-whorl made of stone, deer-horn, or clay. The distaff was probably not yet known; a loom has not yet been found, either; but numerous weaver's weights, which served for spinning the threads, have been. Excellent webs, some of them twilled, were produced, of which we have many fragments. Remains of mats and baskets prove that those were manufactured from the materials still employed at the present day. Corn was baked into a kind of bread consisting of coarsely ground grains. The millstones that were used for grinding the corn are found in large numbers. They are rather worn, hollowed slabs of stone, and smaller flat stones rounded on the top, with which the grains of corn were crushed on the larger slabs. Some of the kitchen utensils we find already much improved. Large and small pots for storing purposes, earthen cooking pots, and dishes, and large wooden spoons and twirling-sticks—the latter probably for churning—have been preserved. Vessels like strainers served for making cheese; they are pots in whose sides and bottoms a number of small holes were made for pouring off the whey from the cheese.

First Traces of Textiles

In a Stone Age Kitchen

Here, in the fully developed Neolithic Period we find the early inhabitants of Switzerland to be a settled agricultural and farming population. Although hunting and fishing still furnished an important part of their food, so that in some places even more deer bones have been found among the cooking remains than bones of the ox, yet the milk, cheese, and butter of the cows, sheep, and goats, the flesh of these and of the hog, and bread and fruit, already formed the basis of their subsistence.



A PRIMITIVE STYLE OF DWELLING STILL WIDESPREAD IN SAVAGE LANDS

The lake dwellings still in use in New Guinea, illustrated in this reproduction from an old work, D'Urville's "Voyage of the Astrolabe," are exactly like the lake dwellings of prehistoric Europe.

The results of cave research are almost as rich and varied as the results yielded by the study of the lake-dwellings in their bearing on the Neolithic stratum. Where there is a Drift stratum in the cave-earth the confusion of Palæolithic and Neolithic objects can, as we have said, scarcely be avoided. But there are numerous grottos and small caves in which the Neolithic stratum is the oldest, so that mistakes are out of the question. In a large number of such places in the cave district of the Franconian-Bavarian Jura the conditions under which finds have been made in the Neolithic stratum have proved almost as pure and unmixed as in the lake-dwellings.

Man Learning the Art of Living

The cave-dwellers of the later Stone Age in the Franconian Jura were, like the Swiss lake-dwellers of the Stone Age, mainly a pastoral race. They possessed all the important domestic animals that the latter possessed—dog, cow, horse, sheep, goat, pig—and likewise practised agriculture, or, at any rate, flax-growing; at the same time hunting and fishing formed a considerable part of their means of subsistence. So that, not only on artificial pile-works on the shores of lakes, but also on the banks of South German rivers, there formerly lived a race which, although still mainly restricted to hunting and fishing, and using no metal, but exclusively stone and bone tools, already practised cattle-breeding and primitive agriculture, and was able to increase the means of existence afforded it by Nature by the first technical arts—by the chipping and grinding of stone instruments, bone carving, and, above all, pottery-making, tanning, and the arts of sowing, weaving and plaiting.

Of most importance, as showing the state of civilisation of the Neolithic rock-dwellers, are the numerous articles carved from bone that must be looked upon as instruments for weaving and net-knitting. For the latter purpose there were large, finely-smoothed bone crochet-needles, some of them carved from the rib of a large ruminant. The handle-end is smoothed by use, and the end with the hook is rounded from the same cause. The end is frequently perforated, so that it might be hung up. Still more numerous were shuttles of various forms.

Beginning of Weaving and Knitting

According to the numerous finds of perforated clay weaver's weights, the loom, like that of the lake-dwellers, must have been like the ancient implement that, according to Montelius, was in use on the Faröe Islands a comparatively short time ago. Spinning-whorls are very numerous, being partly flat, round discs of bone pierced in the centre, and partly thick bone rings or large beads of bone and deer-horn and flat burr-pieces of deer-antlers.

It was formerly thought that the Neolithic Europeans did not possess the arts of engraving and carving animals and human figures which the Palæolithic Men had understood in such conspicuous manner. The progress of research has now produced more and more proof that in the later Stone Age the arts of carving and engraving had not died out. We have the celebrated amber carvings of the later Stone Age from the Kurisches Haff, near Schwarzort, some of which probably served a religious purpose; those of ivory, bone, stalactite, etc., from the caves of France and the Polish Jura; the figures from Butmir, and other evidences.

In Italy, in Lombardy, and Emilia, another group of settlements of the Stone Age has been found, which again exhibit the civilisation and all other signs of the later Stone Age, and in many respects more closely resemble the lake-dwellings than do the cave-dwellings. These are the "terramare," whose inhabitants, however, had already to some extent advanced to the use of bronze. A sharp division of strata into habitation of the pure Stone Age and habitation of the Metal Age has not yet been made. The huts stood on pile-work on dry land, the piles being six to ten feet high; the whole settlement was fortified with trench and rampart, generally with palisades, and was of an oblong or oval plan. Besides many natural and artificial caves in Italy the dwelling-pits, which may formerly have borne the superstructure of a hut, also belong to the pure Stone Age.

Fortified Settlements in Stone Age

Such dwelling-pits of the Stone Age seem to have been distributed all over Europe. Burnt wall-plaster with impressions of interwoven twigs, has frequently been found near or in the pits, doubtless indicating hut-building. In Mecklenburg, where the dwelling-pits were first carefully examined by Liesch, they have a circular outline of ten to fifteen yards, and are five to six and a half feet deep. At the bottom



LAKE-DWELLERS RETURNING FROM THE HUNT IN THEIR DUG-OUT CANOES

From a painting by Hippolyte Coutau, in the Geneva Museum.

of the pit lie burnt and blackened stones, hearthstones, charcoal, potsherds, broken bones of animals, and a few stone implements, the latter being mostly found in larger numbers in the vicinity of the dwellings. The same circular dwelling-pits of the Stone Age are found in France. Smaller hearth-pits were recently found in very large numbers in the Spessart, in Bavaria, with hundreds of stone hatchets and perforated axe-hammers, some of the former being very finely made of jadeite.

Strange Homes of Early Man

During the Neolithic Period dwellings were frequently made on heights, and it seems that even at that time they were to a certain extent walled round and fortified. Such settlements are numerous all over Southern and Central Germany, in Austria-Hungary, especially in the coast-country, and in Italy and France. Many of these stations belong purely to the Stone Age; indeed, the majority were inhabited already during the Stone Age, and furnish the typical Neolithic relics familiar from the foregoing. On the other hand, they continue to be inhabited even in the later metal periods, and in some cases right down to modern times. The rock near Clausen, in the Eisack valley, in the Tyrol, on which the large Säben monastery now stands, was a mediæval castle, and during the times of the Romans a fortified settlement called Sobona stood there; and when excavations were made in 1895, for adding new buildings to the monastery, a well-ground stone hatchet of the later Stone Age came to light. On many hills in Central Germany are found traces of the ancient presence of men who lived on them or assembled on them for sacrificial feasts; the earth is coloured black by charred remains and organic influences, and this "black earth on heights and hills" contains frequently, as we have said, the traces of Neolithic men. In Italy, many finds on such heights—for instance, those made on the small castle-hill near Imola—seem to exhibit that stage of the Stone Age that is missing in the terramare, and that precedes the beginning of the Metal Age of the terramare, but corresponds to it in every essential except in the possession of metal.

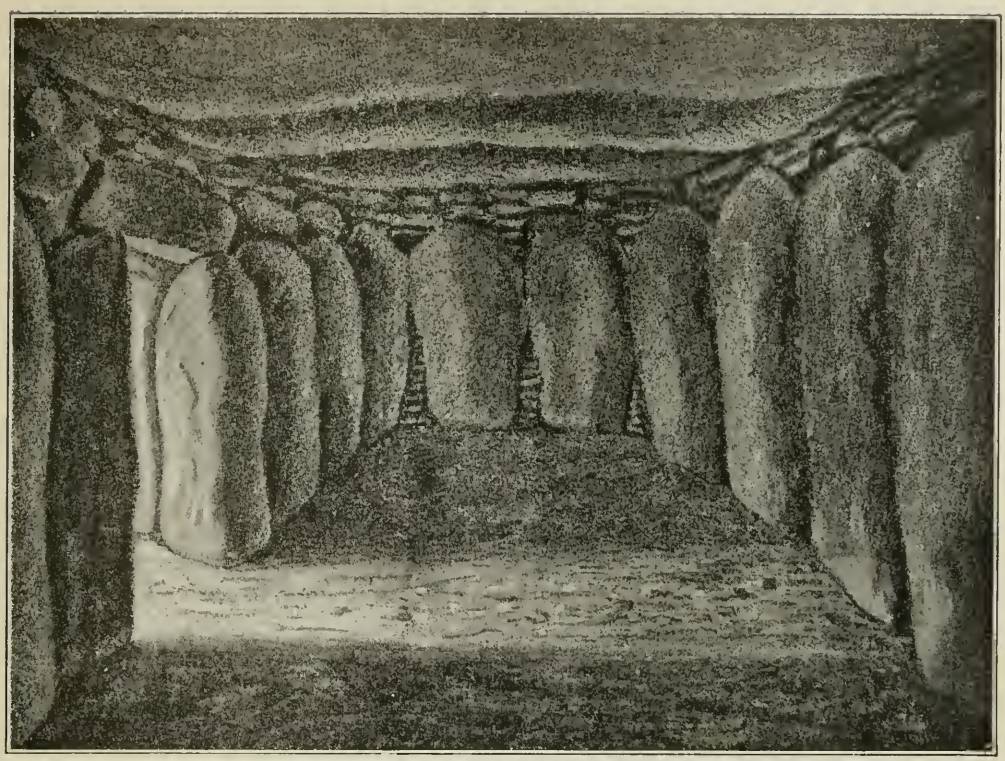
America before History

But the view that is opened up is still wider. The prehistoric times of the New World also exhibit a Neolithic stage, corresponding to that of Europe, as the basis of the further development of the ancient civilised lands of America. And where a higher civilisation did not develop autochthonously in America, European discoverers found the Neolithic civilisation still in active existence, as they did in the whole Australian world. Accordingly in these vast regions, which have never risen above the Stone Age of themselves, the same stage of civilisation which in the old civilised lands belongs to a grey, immemorial, prehistoric period, here stands in the broad light of historic times. The study of modern tribes in an age of stone throws many a ray of light on the conditions of the prehistoric Stone Age; and this study, on the other hand, shows us that the primitive conditions of civilisation of those tribes stand for a general stage of transition in the development of all mankind.

The lake-dwelling stations, and the land settlements resembling them, prove of themselves how far the culture of the early inhabitants of Europe was advanced even in that ancient period which was formerly imagined to be scarcely raised above half-animal conditions. Such structures could not be erected unless men combined into large social communities, which is indeed indicated by the very fact of the number of dwellings that were crowded into a comparatively small space. For the first ramming-in of the pile-works a large number of men working together on a common plan was absolutely necessary. The same applies to the construction of the artificial islands, protected by pile-works and partly resting on piles, termed "crannoges" by Irish archæologists, and to the Italian villages called "terramare," which likewise once rested on piles and were protected by ditches. From the extent of the pile-works we are able to estimate the number of the former inhabitants of the settlements supported by them. Quite as clear an idea of the number of the former inhabitants is also given by the early circumvallations on the tops of hills and shoulders of rock, which were likewise made and inhabited during the Stone Age.

The Foundations of Society

The co-operation of a large number of men for a common purpose is also shown in the often huge stone structures to which, on account of the size of the stones employed in their construction, the name



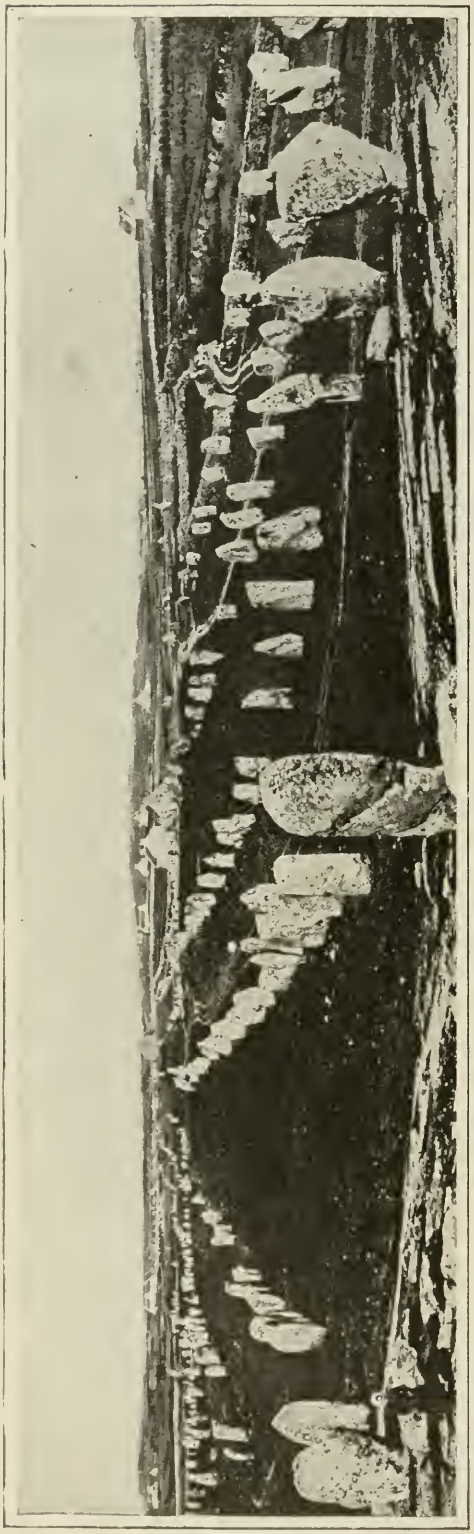
THE FAMOUS GIANT CHAMBER NEAR ROSKILDE IN DENMARK

That the men of the later Stone Age had developed a considerable degree of culture is proved by such remains as these. The erection of these giant chambers must have called for a vast amount of co-operation, skill, and ingenuity. The means whereby the massive stones were placed into position, and so fixed to withstand the shocks of thousands of years, have not yet been satisfactorily explained by archæology.

" megalithic " structures, or gigantic stone structures, has been given. In Northern Europe they, too, belong to the Stone Age proper. The majority of these gigantic structures were originally tombs ; the principle on which they are built is often repeated even in far less imposing tombs.

The stone blocks of which these gigantic structures are piled now often lie bare. Large stones placed crosswise, which represent, as it were, the side-walls of a room, support a roof of one or several " covering-stones " of occasionally colossal size. For the erection of these in their present position without the technical resources at the disposal of modern builders, human strength appears inadequate ; in popular opinion only giants could have made such structures. Some of the stones are really so large, and the covering-stones especially so enormous, that these buildings have defied destruction, for thousands of years, by their very weight.

In the time of their construction these giants' graves were mostly buried under mounds. They were the inner structures of large tumuli, in which the reverence of the men of the Stone Age once buried its heroes. One of the finest " giant's chambers " is probably that near Ôm, in the neighbourhood of Roskilde, in Denmark. The building material consists merely of erratic stone blocks of enormous size. The rough blocks were mostly set up by the side of one another, without any further working, so as to support one another as far as possible ; at the same time all of them, as Sophus Müller observes, are slightly inclined inward, so that they are kept more firmly in position by their own weight. The stones thus erected, forming the parallel side-walls of the whole structure, stand so far apart that a huge erratic block, reaching from one wall to the other, could be placed on them as a roof. The distance between the side-walls of the giant's chambers attains a maximum of eight to nine feet ; the covering-stones placed on them are some ten to eleven feet long. The pressure of the covering-stones from above helps



THE MARVELLOUS MEMORIALS OF THE STONE AGE AT CARNAC IN BRITTANY

On the plain near the little town of Carnac, in Brittany, stand eleven thousand immense monoliths in eleven rows, erected probably for religious purposes in the Stone Age.

considerably to hold the whole structure together. In order to distribute the pressure of the covering-stones regularly, smaller stones were carefully inserted under the wall-stones where they had to stand on the ground. How exactly these proportions of weight were judged is proved by the fact that these structures of heavy and irregular stones, resting on their natural, differently shaped sides and edges, have held together until the present day. The inner walls of the chambers were made as carefully as possible. Where, as on the outside, the rough and irregular form of the stone block projects, either the naturally smooth side was turned inward or the roughness was chipped off.

These are the beginnings of a real architecture, seen also in the regular wedging with small stones of the spaces left between the wall-stones and covering-stones and between the wall-stones themselves. These small stones were frequently built in, in regular wall-like layers. Sandstone was often used for the purpose, being more easily split into regular pieces, which gave this masonry a still more pleasing appearance. The number of stone blocks used for the wall-sides varies according to the size of the giant's chambers, as does also the number of covering-stones. For smaller chambers, with six to nine wall-stones, two or three covering-stones were required. But far larger stone chambers occur, as many as seventeen wall-stones having been counted. Such large chambers require a whole row of covering-stones beside one another. The door-opening often shows a special regard for architectonics. The two door-post stones are rather lower than the other wall-stones; on them a stone was laid horizontally, which kept them apart and distributed the pressure of the covering-stone equally on both posts.

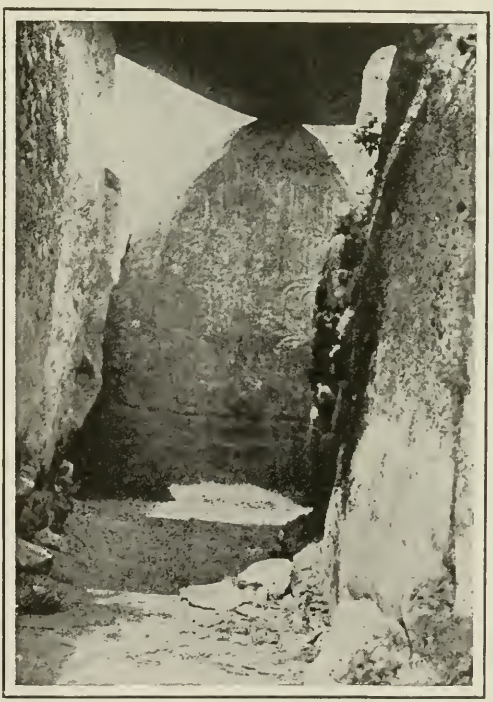
Very often there was also a stone as a threshold. Leading to the door is a low passage, made in similar manner to the chamber, but of far smaller stones. The passage is only high enough to allow one to creep through, whereas the chamber itself is about as high as a man, so that one could stand



"THE MERCHANTS' TABLE": AN IMMENSE DOLMEN ERECTED IN THE STONE AGE

Archæologists are not entirely agreed as to the purpose of these dolmens. They were more likely graves, or chambers associated with religious rites, than residences. This example is at Locmariaquer, near Carnac, in Brittany.

upright in most of them. Larger stone chambers are rarely without this passage, and from it such grave-structures have been named "passage-graves." Besides the building-in of small stones, the holes still remaining between the stones were also coated over on the outside with mud to keep the rain-water from soaking in; mud was also frequently used for making a rough plaster floor for the chamber if the natural floor could not be made level enough. On the floor is frequently found a compact layer of small flints, or a regular pavement of flat stones, often rough-hewn, or roundish stones fitting one another as nearly as possible, which were then probably also covered with a thick layer of mud.

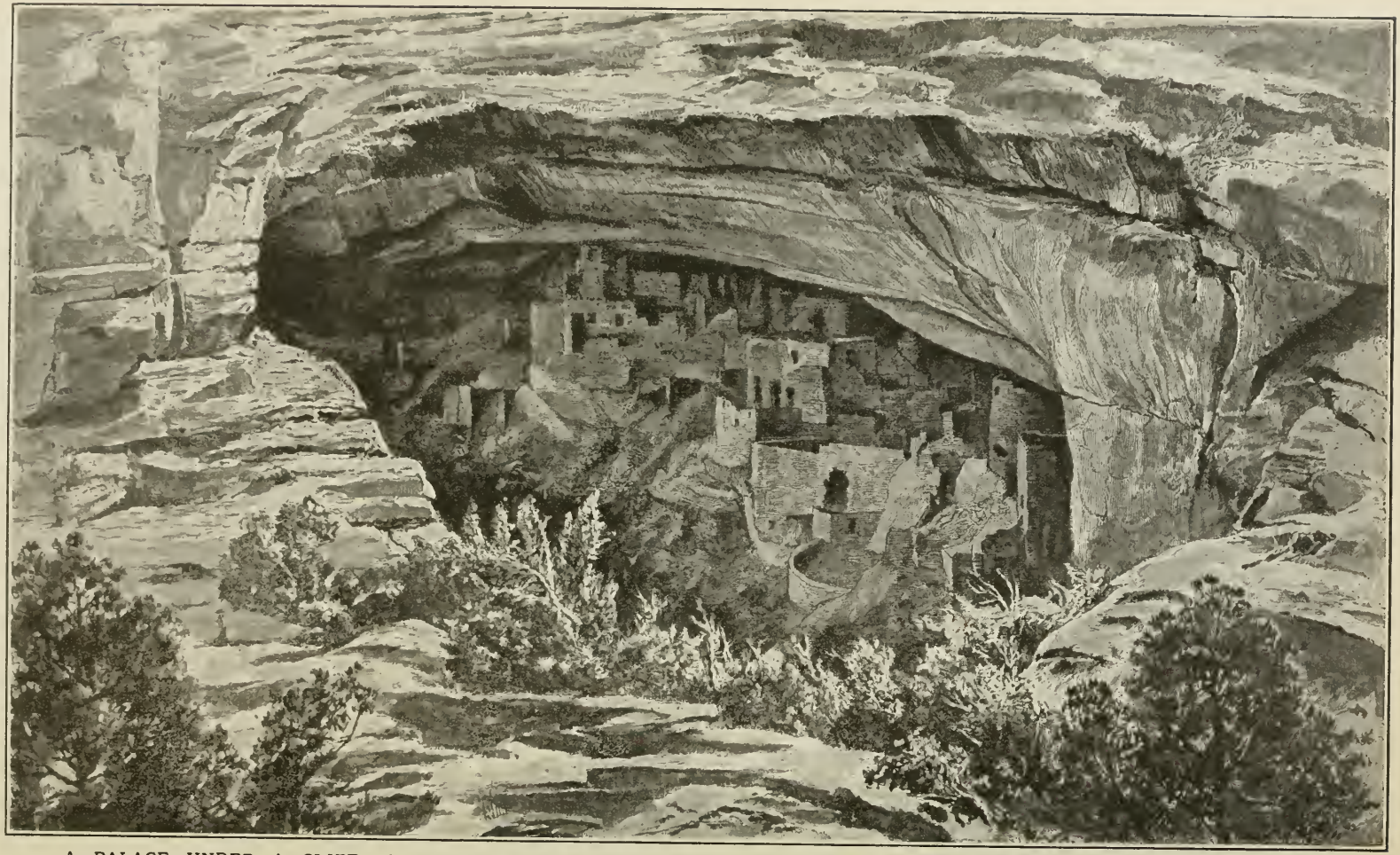


INTERIOR OF THE "MERCHANTS' TABLE"

This is the interior of the above dolmen. It will be seen that the earth has slowly risen a great height since it was erected, nearly covering the dolmen, thus indicating immense age. The principal supporting stone is covered with sculpture.

So that in these giant's chambers we have real buildings, which imply high technical accomplishments and have preserved for us the usual form of the dwellings of those early times. In what manner the huge covering-stones were placed on the side-walls of the giant's chambers is a problem still unsolved. Doubtless many hands were occupied on such structures; and the history of building teaches us that with the proper use of human strength—as, for instance, in ancient Egypt—great weights can be raised and placed in position with very simple tools—round pieces of wood as rollers, ropes, and handspikes.

Some of these giant's chambers, which were originally enclosed in mounds or barrows, are still preserved at the present day, and splendidly too. Very often the chamber was quite covered with earth outside; it then formed the centre of what was



A PALACE UNDER A CLIFF: A REMARKABLE MONUMENT OF THE STONE AGE IN CLIFF PALACE CAÑON, COLORADO
This is perhaps the most noteworthy of all the remains of the cliff dwellers, and indicates how considerable was the culture of those early people in America

generally a circular barrow, often regular small hills ten to fifteen feet high and frequently over ninety feet in circumference.

The corpses were buried, not cremated. They were frequently in a crouching attitude, or that of a sleeper lying sideways with the legs drawn up to the body. The smaller graves often represent single interments; the larger or largest ones are mostly family tombs, in which numerous corpses were interred one after the other at different times. But this repeated use of the graves is found also with smaller ones, and even with stone cists. Only the last corpse then lies in a normal position, while, through the repeated opening of the grave and the later interments, the skeletons belonging to previously interred corpses appear more or less disturbed or intentionally put aside. The skulls of the corpses interred in the Neolithic graves are well formed, their size indicating a very considerable brain development. The corpses were no bigger than the present inhabitants of the same districts, and the form of the head corresponds partly with that of the present population of those countries. Nor do the skeletons otherwise differ from those of modern men.

In America, also, gigantic structures were erected by the aborigines who lived in the Stone Age, to commemorate and to protect their dead. They consist partly of large mounds of stones and earth, which are likewise often regular small hills, and partly of stone structures reminding one of the giants' chambers. The majority of the mounds were doubtless mainly sepulchral; others may have been temple-hills or sacrificial mounds, defensive works or observatories.

The objects buried with the occupants belong mostly to the Neolithic Period, and consist chiefly of stone weapons and tools, some rude, but others finely worked and polished. Some are of pure natural copper, which was beaten into shape cold with stone hammers. Besides these, and ornaments and pottery, an American specialty is found in the form of tobacco-pipes carved from stone, some of which give interesting representations of men and animals; this seems to prove that tobacco also played a part in the American funeral rites of those times.

The graves of the Neolithic Period not only indicate that mankind generally was endowed with the same gifts as regards the first principles of the art of building, but they also afford us a glimpse of the mental life of that period of civilisation which at a more or less distant period was spread over the whole earth. What is so characteristic is the affectionate care for the corpse, for whose protection no amount of labour and trouble appeared too great. We can have no doubt that this reverence was based on a belief in the immortality of the soul—a belief which we find also at the present day among the most backward and abandoned "savages." That the pre-



G. Nordenskiöld

HOW STONE AGE MAN WAS BURIED

Photograph of an actual skeleton, in position of burial, taken from a prehistoric mound grave in North America.

historic men of the Stone Age held this belief is proved by the ornaments, weapons, implements, and food placed with the dead for use in the next world. Their burial customs certainly express a kind of worship of departed souls which has played and still plays so important a part in the religious ideas of all primitive peoples, and is one of the oldest fundamental notions common to mankind.



THE STRANGE RELIGION OF THE STONE AGE: A DRUID CEREMONY AT STONEHENGE
A vivid illustration, from an old print, of the purposes of the mysterious stone circles common in Celtic countries



Professor JOHANNES RANKE

WHEN HISTORY WAS DAWNING

THE discovery of Drift Man, his distinction from man of the later Stone Age, the investigation of the Palæolithic and Neolithic strata of culture of Europe and of the whole earth, and the scientific reconstruction of the earliest forms of civilisation based on these, are due solely to the natural-science method of research.

It was only when the exact methods of palæontology and geology had been brought to bear with all their rigour on the study of ancient man by savants schooled in natural science that solid results were obtained. On this sure foundation the science of history now continues building, and uses, even for the later periods, so far as recorded information is not available, and to supplement it, the same methods of palæontology and natural science which were applied so successfully to the earliest stages of the evolution of mankind.

The first point is to collect the relics of the periods of the evolution of culture which follow on the later Stone Age, and to separate them according to geological strata, uninfluenced by those older pseudo-historic fancies by which the deepening of our historical knowledge has so long been hindered. By carefully separating and tracing the earth's strata till we come to those that furnish remains of times recorded in history, it has been possible to establish first a relative chronology of the so-called later prehistoric periods of Central Europe, whose offshoots pass immediately into recorded history.

Time-Table of Prehistoric Periods

By digging, after the same method of palæontological science, through stratum after stratum in the oldest centres of culture, especially in the Mediterranean countries, and by arranging the products by strata—uninfluenced by historical hypotheses—after the same natural-science method of research which has produced such remarkable results in Central Europe, the most surprising conformity in the evolution of culture in widely remote regions has been shown. It was found that in the Mediterranean countries, and also in Egypt and Babylonia, forms of culture already belong to the time of real history which were first recognised in Central Europe as preliminary prehistoric stages of historical strata; so that it was possible also to establish an absolute historical chronology for those instead of the relative prehistoric one.

Thus times which, as regards Central Europe, were hitherto wrapped in prehistoric night are enlightened by history. Although, as regards Central and Northern Europe, we cannot name the peoples who were the bearers of those forms of culture, and although we disdain to give them a premature nomenclature of hypothetical names, yet their conditions of life and culture and the progressive development of these, in manifold contact and intercourse with neighbouring and even far remote historic peoples and periods, have risen from the darkness of thousands of years; and their relation in time to the latter has been recognised.

Europe's Prehistoric Night

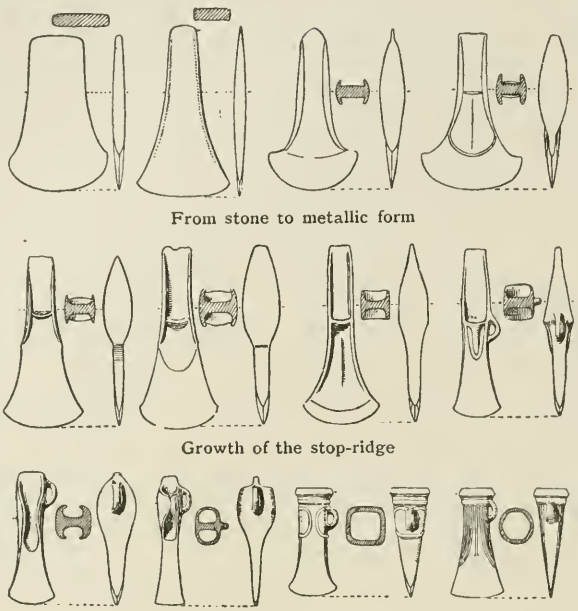
Thus prehistoric times have themselves become history. The historical account of every single region has henceforth to begin with the description of the oldest antiquities of the soil that tell of man's habitation, in order thereby to obtain the chronological connection with the evolution of the history of mankind generally. That is the palæontological method of historical research.

The palæontology of man has proved the Stone Age to be a general primary stage of culture for the whole human race. All further general progress in culture was affected by the discovery of the art of metal-working—the extraction of the metals from their ores and the casting and forging of them. The later and latest eras of culture are the Metal Ages, as opposed to the Stone Ages. It is not the use of metal in itself, but the above-mentioned metallurgical arts, that form the criterion of the advance of culture beyond the bounds of the Stone Age. Where, as in some parts of America, native copper was found in abundance, this red

Landmarks of Early Culture

malleable mineral could probably be worked in the same way as stone, without any further progress necessarily developing therefrom. The same may apply to meteor-iron, which is said to have been used for arrows, together with stone points, by American tribes who were otherwise in the age of stone and but poorly civilised.

In civilised lands it is chiefly metal casting and the forging of the heated metal which have made it possible to produce better weapons and tools and more valuable ornaments. The worked metals are first copper, then the alloy of copper and tin that bears the name of classical bronze, and to these are soon added gold and—especially in districts rich in the metal, as in Spain—silver. Later on the extraction of iron from its ores and the forging of that metal are discovered.



THE TRANSITION FROM STONE TO IRON

This series of diagrams, reproduced from specimens in the British Museum, by permission of the Trustees, shows how the stone axe-head was used as the model for the metal axe or celt, and how that in turn was modified as workers gained experience in the use of the metal

According to this course of metallurgical progress the first metal period is distinguished as the Bronze Period, which is begun by a Copper Period lasting more or less long in different places. The second or later metal period is the Iron Period, in which we are living at the present day. In the course of time, by gradually displacing bronze and copper from the rank of metals worked for weapons and tools, this Iron Age has developed to its present stage.

In Central Europe the pile-dwellings in the lakes of Western Switzerland again present us with specially clear and uninterrupted series of illustrations of the progress of culture from the Stone Age to the Iron Age. Ending the Stone Age, we find first a period of transition, in which, while stone continued to be principally employed, a few ornaments, weapons, and tools of metal began to be used. This metal is at first almost exclusively copper, with only very little bronze; iron is quite absent. Copper objects have been found in Western Switzerland by Victor Gross, most extensively in Fenel's lake-dwelling station, which otherwise still belongs to the Stone Age. The majority of these are small daggers, formed after the pattern of the flint daggers; some already possess rivetings for fastening the blade to a handle. There are also chisels and small awls in bone handles, beads, and small ornamental leaves, and hatchets of the form of the simplest stone hatchets, with the edge hammered out and broadened. Much has proved the existence of a Copper Period corresponding to this description in the lake-dwelling in the Mond See in Austria, and in Hungary the remains of a Copper Period are particularly frequent. Parallel cases also occur in many other parts of Europe, particularly, as Virchow has proved, in the Spanish Peninsula, and in the Stone Age graves of Cujavia in Prussian Poland. These are the more important as they are most closely related to the conditions of culture discovered in the ancient strata of Hissarlik-Troy. Further unmistakable analogies occur with very ancient finds in Cyprus, and probably even with the oldest remains of Babylonian culture hitherto known. Here, too, we may include the finds of copper in the Stone Age of America.

So that in the normal and complete evolution of culture there seems to be first a stratum of copper as the connecting link between the Stone and Metal Ages; and

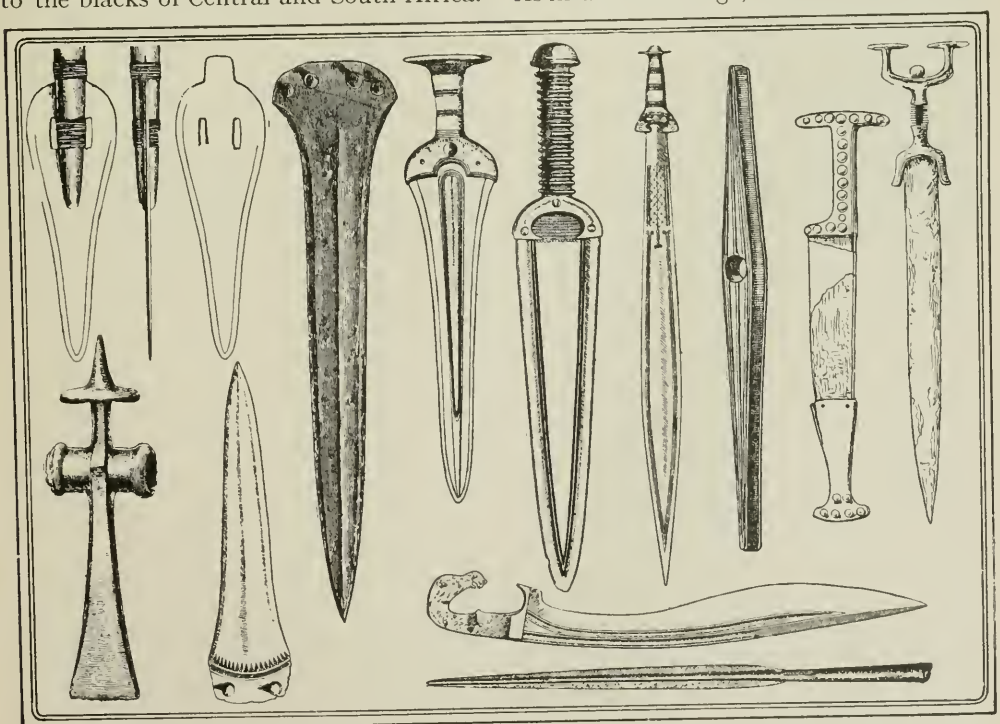
this must be missing in those regions in which progress from the stone to the metal culture was only brought about at a relatively later period by external influences. This applies not only to all modern races in an age of stone, who obtained metal in recent times only through contact with European nations who had been living in the Iron Period for thousands of years, but, curiously enough, also to the greater part of Africa, where the use of iron was prevalent at a prehistoric period.

The Passing of the Stone Age

Just as the modern Stone races passed straight from the Stone Age into the most highly-developed Iron Age of the most advanced culture, so also the stone stratum of Central and South Africa is immediately overlaid by a stratum of iron culture, which was brought there in ancient times, probably direct from Egypt. As there is in Egypt and throughout North Africa a regular development from the Copper-bronze Period to the complete iron culture, corresponding to the progress of the metal cultures of Europe and Asia, the point of time is thus chronologically fixed at which this important element of culture was transmitted from Europe to the blacks of Central and South Africa.

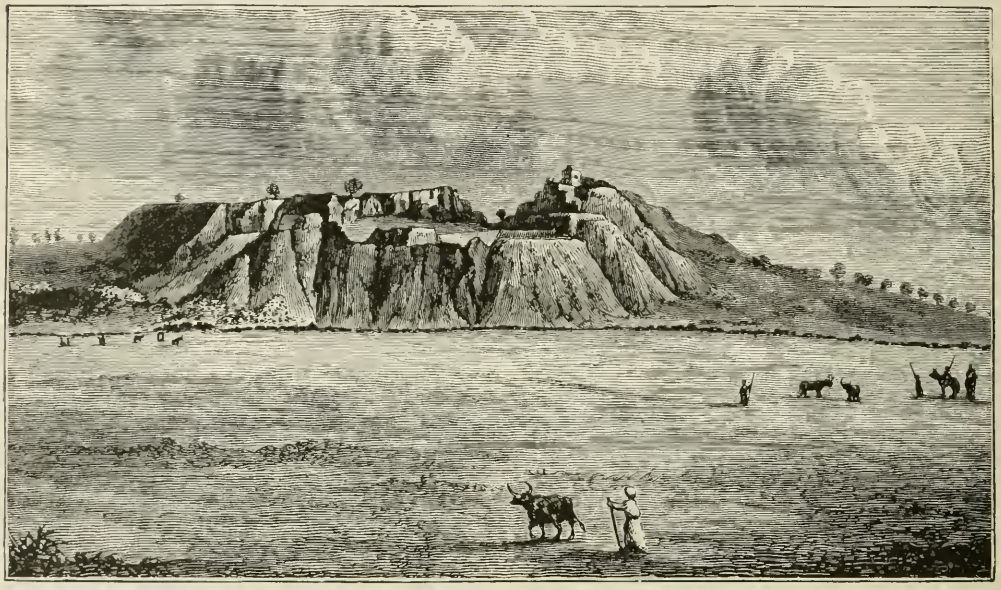
In Western Switzerland the transition period of copper is followed without a gap in the development by the Bronze Period proper. With the introduction of bronze all the conditions of life were more highly developed in the sense of increased culture. With better tools the stations of the Bronze Age could be erected at a greater distance from the bank, often two hundred to three hundred yards; the space they take up is also much greater. The piles are not only better preserved, according as the time of their being driven in more nearly approaches our own, but they are also better worked, are often square, and the points that are rammed into the lake-bottom are better cut. The settlements of the Bronze Age often cover an area of several hundred square yards, and are no longer comparatively mean villages, as in the Stone Age; the pile settlements of the Bronze Age are well-organised market towns and even flourishing small cities, where a certain luxury already prevails. The products of their industry are graced by that beauty and elegance of form that only an advanced civilisation can create. As in the Stone Age, so also in the Bronze

Advancing Civilisation in Bronze Age



WEAPONS USED BY MAN IN THE PERIODS OF DAWNING HISTORY
Reproduced chiefly from specimens in the British Museum.

Age of Central and Northern Europe, the most important working-implement, which was, however, also used as a weapon, was the axe, or celt. The most primitive forms of axes, like the above-mentioned copper axes, still resemble the simple stone axes: like these, they have no special contrivance for fastening the handle. In more developed forms of axes such contrivances for fastening the handle appear first in the form of slight flanges, which become wider and wider; finally they develop into regular wings, which, by curving towards one another, develop into two almost closed lateral semi-canals on the upper side of the celt.



THE HILL OF TROY, IN WHICH IS RECORDED A WONDERFUL STORY OF MAN'S PROGRESS

Seven towns of Troy were built upon this hill, one above the ruins of the other, the earliest dating from 3000 B.C.; and the brilliant excavations of Dr. Henry Schliemann, which have won him immortal fame, have contributed more to our knowledge of the history of mankind than any other excavations in our time, as on this site is concentrated a continuous record of man's progress from the late Stone Age to the height of Greek civilisation.

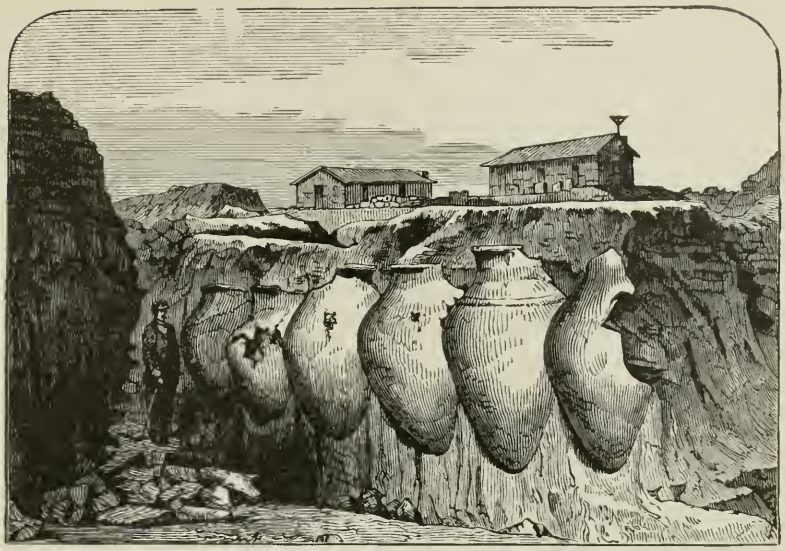
In the hollow celts a simple socket for the handle was cast in the making; an additional means of fastening the handle was provided in a loop, which also occurs on winged celts. Besides the celt, or axe-blade, broad and narrow chisels of bronze occur in various forms for working wood. A second chief type of instrument is the one-edged bronze knife with elegantly curved back and a handle tongue.

The manner in which iron was found in the lake-dwellings, as mentioned above, shows the gradual development of a period of transition between a Bronze and an Iron Age. In spite of the difference in the material which the lake-dwellers used for making their weapons and tools in the periods of transition, they still imitate the old forms received from their forefathers. Just as the first metal axes of copper are copies of the stone axes, so also, when iron first became known, were weapons made of this metal which corresponded in form to the bronze weapons that had hitherto been used.

The Bronze Period was first proved to have been a complete form of culture in the North of Europe—in North Germany and Scandinavia. We have now succeeded in establishing the fact that it was a preliminary stage of the Iron Age, in locally original development, in all ancient centres of culture. It is very remarkable that the civilised states of the New World also employed only copper and bronze as working metals. Thus the Peruvians did not know iron any more than the other American peoples until they came in contact with European influences. Besides copper and bronze they had tin and lead, gold and silver. The Peruvian bronzes contain silver to the extent of five to ten per cent. There are axes or celts of bronze similar to the rudest of the first European beginnings in metal corresponding in form to the simple stone axe. Many of the other forms of weapons and implements familiar in the Bronze

Age of the Old World were also made of bronze or copper in America; semi-lunar knives with a handle in the middle, lance-heads and arrow-heads, swords, war-clubs like morning stars, etc. At the same time weapons and implements of stone still remained in use.

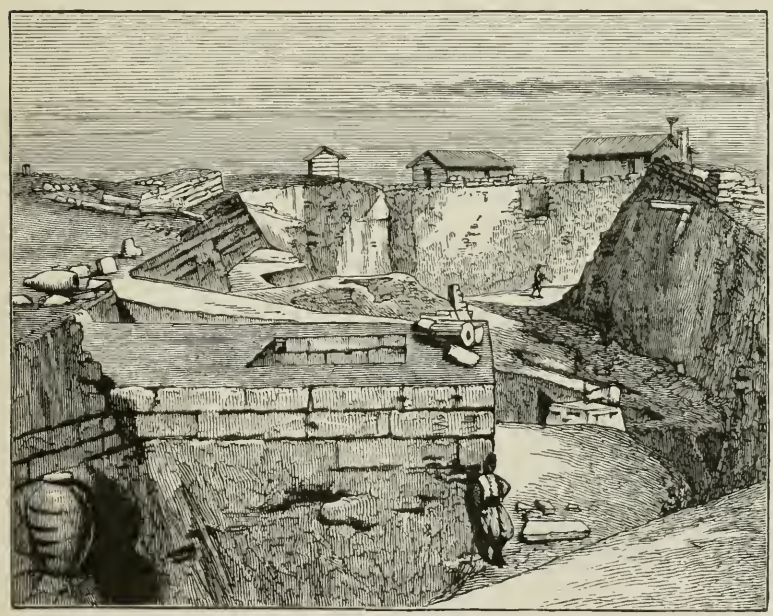
In the Old World progress beyond bronze is everywhere due to iron.



A WINE MERCHANT'S CELLAR IN ANCIENT TROY

Nine colossal earthen jars were discovered by Dr. Schliemann in the depths of the Temple of Athena. They had evidently belonged to some wine merchant's cellar in the pre-Hellenic period.

One place has been found and most completely investigated after the method of palæontological research, with all the help afforded by archæological and historical science, where, in overlying geological strata, the evidences have been found of a progressive development of culture from the end of the Stone Age down to the brilliant days of Græco-Roman history. There the chronological connection has been obtained, not only for the metal periods, but also for the end of the Neolithic Period. This most important place is Troy, the citadel-hill of Hissarlik, by the excavation of which Henry Schliemann has won immortal fame. Schliemann's excavations, supplemented and completed in decisive manner by Dörpfeld, have brought about the most important advancement of the history of mankind that our age can show.



EXCAVATIONS IN THE TEMPLE OF ATHENA AT TROY

Dr. Schliemann's discoveries in the ruins of this temple and the ruins of older buildings beneath it were among the richest in the entire annals of archæological research.

Virchow's name is inseparably associated with Schliemann's. Furtwängler, in his account, based on personal observation, of the results of the excavations at Troy, has accomplished the great service of exactly determining the chronological connections of the prehistoric with the historic eras, and thereby linking the former to history.

On the spot on which tradition placed Homeric Troy (says Furtwängler) there really has stood a stately citadel, which was contemporaneous with the golden age of Mycenæ, the epoch of the Agamemnon of legend, was intimately related to Mycenæan culture, and at the same time corresponds most exactly to the idea of Troy underlying the old epic.

Seven Towns on One Hill

The citadel-hill of Troy terminates a ridge of heights stretching westward from Mount Ida, almost parallel to the Hellespont, and slopes steeply into the Trojan plain or the valley of the Scamander. The natural hill itself is not very high, but it was overlaid by enormous layers of ruins of buildings and walls, whereby it has been considerably increased not only in height, but also in breadth. Stratum after stratum lies one upon the other like the leaves of a bud, so that the history of the habitation of this venerable place from the most ancient times can be read from these strata which have been opened up by Schliemann and Dörpfeld, as from the leaves of a book. The original ground of the hill-plateau now lies some sixty feet above the plain, but the latter may have been raised something like sixteen to twenty feet by alluvial deposits since the Trojan War. The whole stratum of ruins lying on the original ground of the hill, which Schliemann opened up, amounts to about fifty-two and a half feet. Schliemann distinguished seven or eight different layers or strata, corresponding to as many towns which were successively built on this hill, one on the ruins of the other.

The lowest stratum, lying immediately on the original ground, belongs accordingly to the oldest, or first town, on the citadel-hill of Troy. Furtwängler says :

The First Town of Troy

By moderate computation this settlement must belong to the first half of the third millennium before Christ, but it may very well date back even to the fourth millennium. The inhabitants already used copper implements in addition to stone ones. Their whole culture is most closely connected with that which prevailed in Central Europe during the Copper Period. Clay vessels of the Copper Period from Lake Mond, in Austria, agree completely with those of the first Trojan town. Troy represents only an offshoot of Central European culture, and its inhabitants were in all probability of European origin.

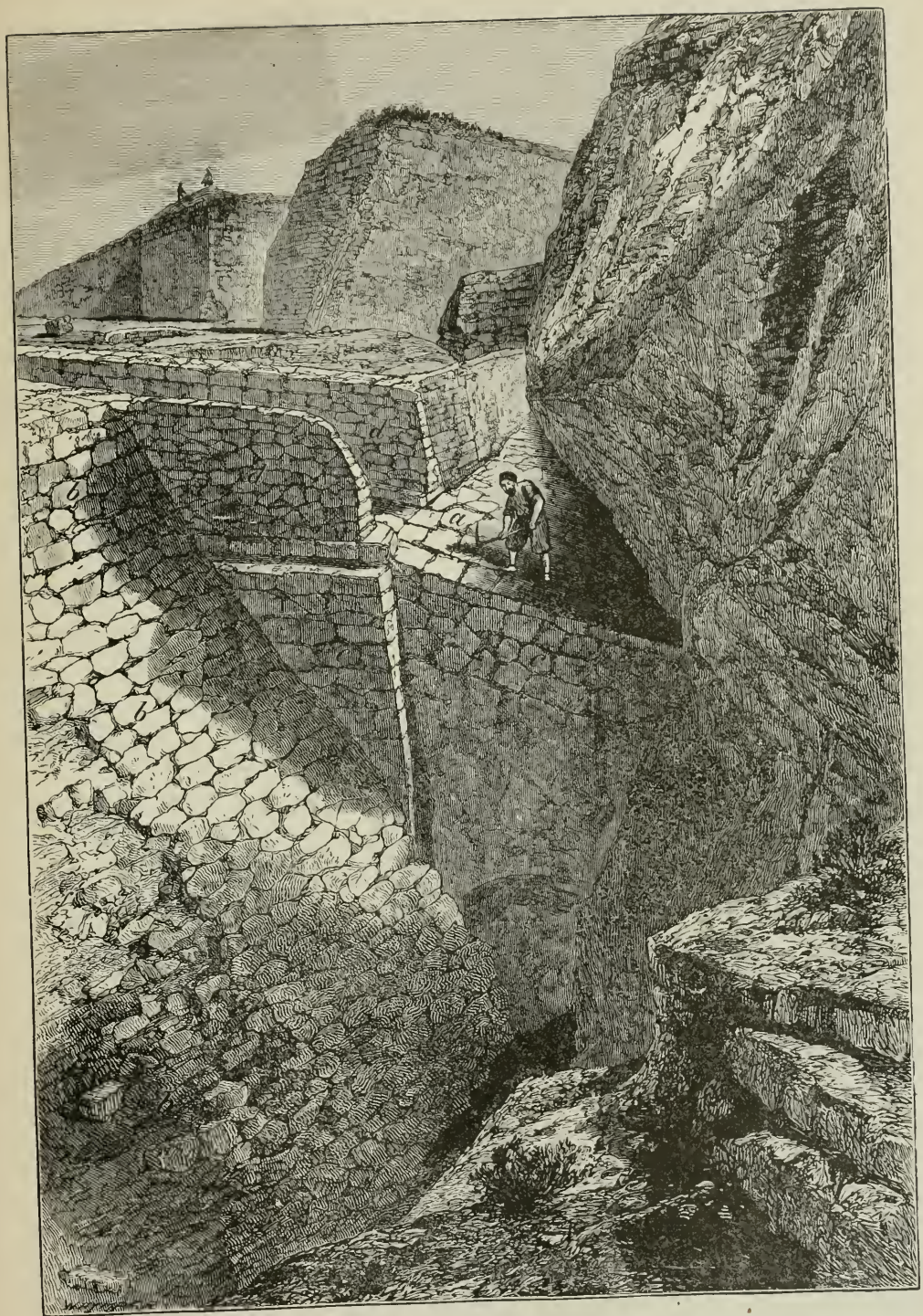
We have already learned that the Copper Period is the end of the Neolithic Period and the beginning of the Metal Age. In the first Trojan town there is still extraordinarily little metal used, the axes, hatchets, knives, and saws still being of stone, of the familiar Central European types, and of the same materials, among which nephrite is particularly frequent. Other materials are serpentine, diorite, porphyry, hematite, flint, etc.

The forms of these implements correspond entirely to those of the later Stone Age of Europe. The character of the ceramics also conforms in many respects, according to Virchow, to that of the European Stone Age ; and the Stone Age finds at Butmir, in Bosnia, and similar ones in Transylvania seem especially to offer close analogies. It would be a highly important step toward connecting history with the Neolithic Period if the first town could be even more closely investigated, and perhaps more sharply divided from that second stratum which lies between it and the stratum described by Schliemann as the second or burnt city, and which Schliemann afterward separated into two strata, corresponding to two towns. Perhaps the metal comes only from the second or higher stratum under the burnt city. In that case the oldest would belong purely to the Stone Age. The ceramics would seem to contradict this. Furtwängler continues :

The First Period of Troy's Glory

High above the first town, a deep layer of débris, is the level surface of the second town, which must at least be dated back to the second half of the third millennium before Christ. It was the first period of Troy's glory. Mighty walls protected the citadel. Three different building periods may be distinguished. The walls were brought out a long way and strengthened, and magnificent new gates were built. During the third period of this second city a prince, fond of splendour, had the old narrow gateway replaced by magnificent propylæa and a large hall-erection with a vestibule. A great conflagration destroyed his citadel. A treasure was found by Schliemann—he called it Priam's treasure—in the upper part of the citadel wall, which was made of straw bricks. The tools of the second city are still partly of stone, but also partly of bronze, so that they already belong to the Bronze Age.

The general character of culture is, according to Furtwängler, still essentially Central European. And yet many an individuality has developed, and the influence of Babylonian culture is everywhere apparent, although it does not go very deep. To this influence our authority chiefly attributes the occurrence of a few pots turned on the wheel, especially flat dishes ; for the potter's wheel was still quite



THE EXCAVATIONS AT TROY: REVEALING THE WALL OF THE ACROPOLIS

A view of the great substruction wall of the acropolis of the second city of Troy, on the west side, close to the south-west gate: (a) is the paved road, which leads from the S.W. gate down to the plain; (b) is the continuation of the great acropolis-wall of the second city on the west side of the S.W. gate; (c) is the foundation of the paved road and the quadrangular pier to strengthen it; (d) marks the masonry added by the third settlers.

unknown at that time in Europe, and even at a post so far advanced toward the East as Cyprus, while in Egypt and Babylonia it had been in use from the earliest times. In this period also Troy inclines more to Central Europe as its centre of gravity, but remains far behind the peculiar development that bronze work attained there; in the metal tools no advance is made on the forms of the Copper Period. Into any close relation with Cyprus it does not come; only the basis of their culture is common to both. But this basis had a wide range, relics from German districts being often more closely related to the Trojan ones than are those from Cyprus.

The Early Culture of Troy

The brilliant period of the second city is followed by a long period of decline for Troy. Ruins are piled upon ruins, walls rise upon walls, but each poorer than the others; no new citadel walls, no gates, no palaces belong to this period, in which three strata—the third, fourth, and fifth towns—are distinguished. The first half of the second millennium before Christ must at least be regarded as the time of this deposit. The inhabitants evidently remained the same, and their culture is that of the second city. But no progress was made; nothing but stagnation; the same forms of vessels continue to be made, the same decorated whorls. Naturally, no active intercourse with abroad could develop in this period. And yet this was the time when an active civilised life began to develop on the islands of the Ægean Sea and on the east coast of Greece, which was to bloom in all its splendour in the following period. To this time the finds at Thera belong, where the pottery, all turned on the wheel, is already painted with a so-called varnish colour which shines like metal, and in which plants, flowers, and animals are treated in quite a new and promising naturalistic style hitherto unheard of in Europe. In Cyprus, too, the decoration of pottery developed exceedingly in wealth and variety in this period of the Bronze Age. Troy, on the other hand, is poor and degenerate.

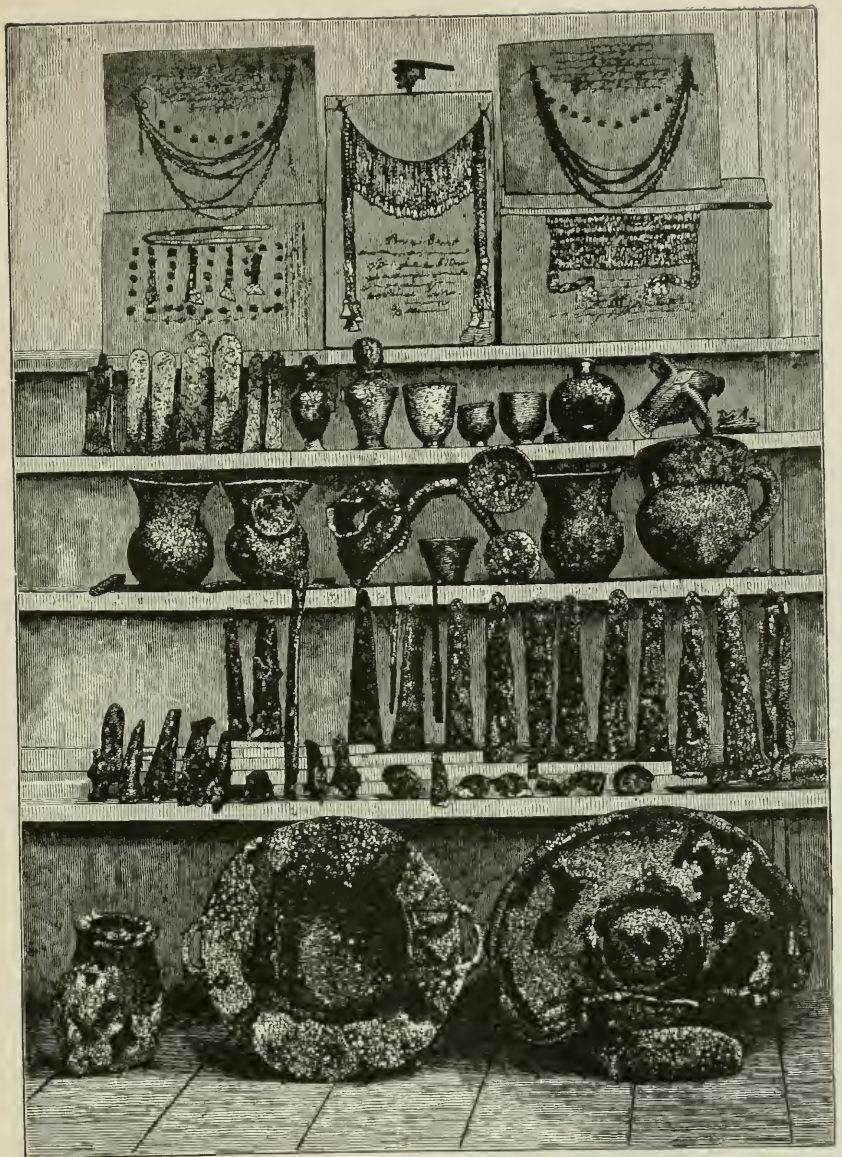


TROY: THE GREAT TOWER OF ILIUM

The top of the tower is 26 ft. below the surface of the hill. The foundation is on the rock 46 ft. deep; the height of the tower is 20 ft.

But a new period of prosperity arrived for Troy, too; this is the sixth town. Rich and powerful princes again ruled in this citadel. They enlarged it far beyond its former compass. They built strong new walls—the old ones had long since sunk in ruins—not of small stones and straw bricks as before, but of large, smooth blocks, and gates and turrets. They did not have the sloping mound of ruins levelled, as the lords of the second city had done; they let the new buildings rise in terraces, on the ruins of the old; stately mansions with wide, deep halls, covered the acropolis. Constant intercourse existed with the princes of Greece, who at that time—the second half of the second millennium before Christ—built their citadels with cyclopean walls. The Trojans employed the same peculiar, constantly-recurring small projections in their walls that we find in a Mycenæan town on Lake Copaïs in Bœotia.

And, above all, the Trojans now provided themselves with those beautiful vessels painted with shining colour that characterise Mycenæan culture in Greece, and whose natural style had so wonderfully developed there on the basis of the attempts that we found at Thera. In Troy these



THE TREASURE OF PRIAM, KING OF TROY: A COLLECTION REVEALED BY THE EXCAVATIONS

This remarkable collection of regal treasure comprises the key of the treasure-house (at top of picture in centre); and, under and about the key, a number of golden diadems, fillets, earrings, and smaller jewels. On the shelf below there are a number of silver talents and vessels of silver and gold; while below them is a series of silver vases and a curious plate of copper. A variety of weapons and helmet crests of copper and bronze are displayed beneath, and on the floor are a vessel, a cauldron and a shield, all made of copper.

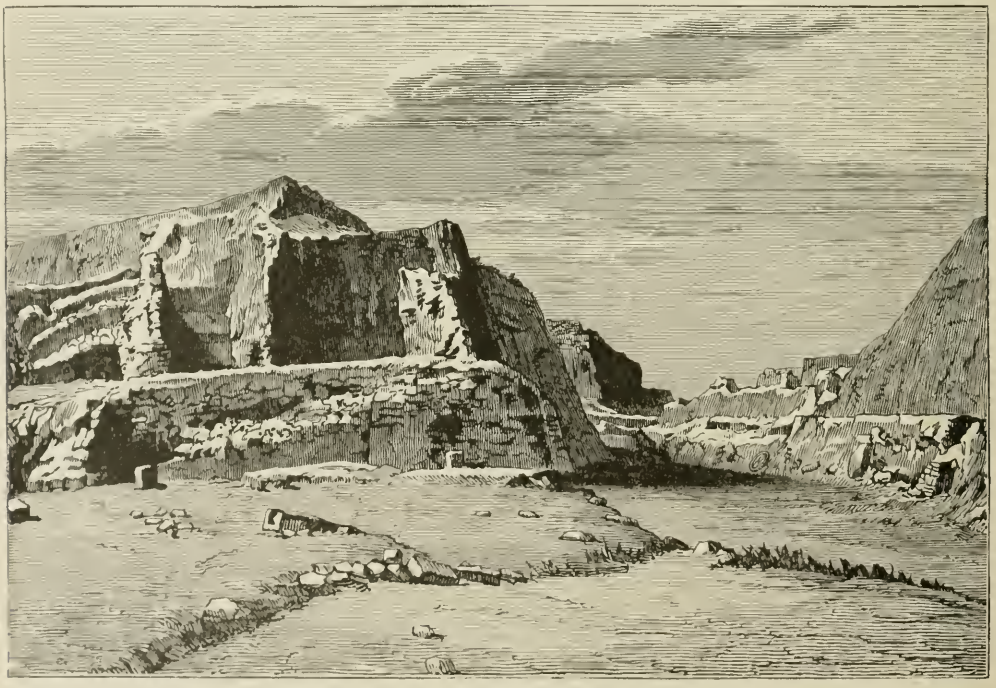
things caused some imitation, but the results remained far behind the originals. The living, imaginative conception of the natural was closed to the Trojan; the home-made pottery kept, on the whole, to its unpainted vessels, although these were now almost entirely made on the wheel.

Yet what chiefly interests us is the historical. The sixth town, too, was suddenly given up, destroyed, and burnt. What follows it are again only poor settlements. Its destruction must have taken place about the end of the Mycenæan epoch of culture. The seventh town, which is built immediately on the ruins of the sixth, shows, already, other and later culture. It had long been suspected that a historical kernel was concealed in the legend of Troy—now we have the monumental confirmation. There really was a Troy, which was strong and great at the same time as the rulers of Mycenæ, rich in gold and treasure, held

sway in Greece. And that Troy was destroyed—we may now safely affirm, from this agreement between relics and legend—by Greek princes of the Mycenæan epoch, whom the legend calls Agamemnon and his men.

The seventh and eighth towns, built soon after the destruction of the sixth, show an interruption in the intercourse with Greece. There the Mycenæan period was broken by the displacement of peoples known as the Doric migration, and that rich civilised life was replaced by a relapse into the semi-barbaric conditions of the North. In Troy, too, we perceive a period of decline, "a relapse into a stage long since past; black hand-made vessels, which in their form and decoration are strikingly like the home-made pots usual in Italy, especially Etruria and Latium, in the first part of the first millennium before Christ." Finally, the seventh town also furnishes inferior imported Greek vases with painting, though coming not from Greece itself, but from the coast of Asia Minor, where Greeks had settled in connection with the Doric migration. "The Æolic colonisation of Troas brought Ilium no fresh prosperity. Other places rose, Troy remained a miserable village. In the Hellenistic period the sky clears over Troy. What Alexander intended, Lysimachus carried out; he restores Ilium to the place of a real city with new walls, and erects a magnificent temple to Athene on the top of the acropolis. . . . Yet artistic creation came to no real perfection. It was only when the great men of Rome, mindful of their Trojan ancestors, began to interest themselves in the place, that new life bloomed on Troy's ruins."

Thus the geological-archæological method relates history, merely relying upon the monuments of the soil, without requiring written evidences. Pre-history has here attained its end; it has become history. JOHANNES RANKE



A VIEW SHOWING THE REMARKABLE CHARACTER OF THE EXCAVATIONS AT TROY

Some idea of the enormous work involved in unearthing ancient Troy will be gathered from the fact, made clear in this view, that the ground-level before excavating was above the height of these buildings. A deep trench was cut, as shown in the illustration, through the whole hill of Hissarlik, the citadel town.

THE GREAT STEPS IN MAN'S DEVELOPMENT

BY PROFESSOR JOSEPH KOHLER

THE MATERIAL PROGRESS OF MANKIND

THE opinion that our own circumstances and affairs are the only standard for judging universal history has long been obsolete. Our day, with its conceptions, beliefs, hopes, and endeavours, is but a tiny portion of the past; for thousands of years peoples have existed who have lived in other intellectual spheres than ours, who have pursued other ideals.

The study of history does not consist in an examination of the past projected, as it were, into the present; it is the study of the past considered as a part of the constant coming and going of men. And in order to become qualified as historians we must first of all attain a point of view from which we may, independently of time, behold history with all its great events file by; as though we were men who had ascended to some elevation in the universe from which they could look down upon the whole earth lying as a unity before them. This is rendered possible through the power of abstraction gained from a study of history; it enables us, on the one hand, to adapt ourselves to strange times and beliefs, and, on the other, to look upon our own day—all time to its contemporary men—objectively, as a mere hour of the ages of human development. We must learn to escape from the present, to withdraw ourselves from that which we may call the tyranny of our own time.



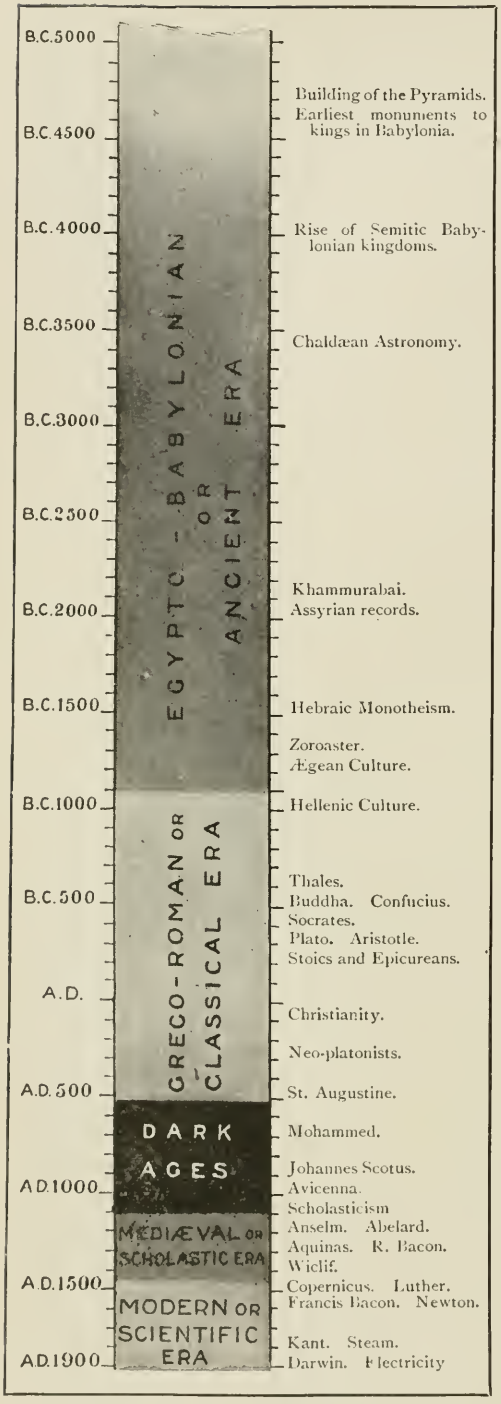
THE PRIMITIVE ART OF WEAVING

The art of weaving arose from plaiting, and soon developed to perfection, the American Indians and most primitive peoples of our own day being skilled weavers.

From universal history we obtain a picture of the development of humanity—that is, the development of the various active germs or principles inherent in man. By these are meant the active principles innate in mankind in the aggregate, in contradistinction to those which may exist in single individuals or in single races.

The result of development is called "civilisation"—the state of intellectual being, and of outward, material life, attained by a people through evolution. Although spiritual and material culture flow into each other, they may be separated to this extent: as a physical being endowed with senses, man endeavours to obtain satisfaction of his needs, and strives for a position in relation to his environment corresponding with the efforts he has made to obtain welfare; as a feeling, inquiring, spiritual being he contains within him an ever-present desire to fuse the multitude of separate impressions he receives into unity, and to struggle forward until he arrives at a conception of the world and of life.

"Material civilisation" is the mode of life through which the obstacles opposed to humanity may be overcome. By the surmounting of obstacles is meant the conquering of enemies, particularly of hostile animals, the obtaining of means for the preservation of existence, and the employing of these means for the increase of bodily



OUR OWN DAY COMPARED WITH THE HISTORIC PAST

Our day, with its conceptions, beliefs, hopes, and endeavours, is but a tiny portion of the past; for thousands of years peoples have existed who have lived in other intellectual spheres than ours, who have pursued other ideals.

welfare. In respect of material civilisation man passes through stages that differ widely from one another, that vary according to the manner in which the necessities for existence are obtained, and according to the way in which enemies are withstood for the safeguarding of life, welfare, and acquisitions already gained. Races are spoken of as supporting themselves by the chase and fishing, or by cattle-breeding and farming, according to whether they are accustomed to derive subsistence directly from "nature unadorned," or by means of the cultivation and utilisation of natural products.

No sharp line of distinction, however, may be drawn. It is inadmissible to speak of races as supporting themselves solely by hunting and fishing, for the very same peoples feed on products of the soil wherever they are found and recognised as means of subsistence. They live, it is true, upon flesh and fish, but also upon roots and the fruit of wild trees. While in this state of civilisation, man avails himself only of that which Nature places before him; he neither adapts Nature to his desire, to his needs, or to his manner of living, nor understands how to do it. He can make no further use of Nature than to acquire a knowledge of the sources of supply, of how to seize time and opportunity, and to overcome the obstacles of life in his own territory. He ascertains the haunts of game, discovers how to obtain fish, explores for wild honey or edible roots, learns to climb the tallest trees and to let himself down into the deepest caves; but he lacks the ability to cultivate Nature, to cause her to produce according to his will.

Gradually the one phase amalgamates with the other. It is not seldom that hunting tribes have small tracts of land on which they raise a few edible plants. Observation of Nature teaches them that germs develop from fallen seeds, and leads of itself to the idea that it is not best to allow plants to grow up wild, and that it would be expedient to clear the surrounding ground for their better growth. And when this stage is reached, the next step—not to allow seeds to spring up by chance, but to place them in the soil one's self—is not very far off; and thus the mere acquisition of Nature's raw vegetable products gives place to agriculture. Often enough we observe instances of the men of a group carrying on hunting operations,



ing of weapons and of contrivances used for the capture of animals lay within the province of the men.

The discovery of how to produce fire by artificial means, independently effected in all parts of the world—as was also the discovery of the art of navigation—was of the greatest importance for the entire future. Fire was first a result of chance.

When lightning set a portion of the forest in flames, and caused a multitude of animals or fruits to be roasted, men put it to practical use. They recognised the advantage that fire gave them and sought to preserve it. The retention of the fire which had been sent down from heaven became one of the most weighty and significant of functions. Man learned how to keep wood-fibres smouldering, and how to blow them into flame at will; he also learned that it was possible to convey fire, or the potentiality of fire, along with

while the women are not only occupied with their domestic employments, but also till the soil; thus the men are hunters and fishers, and the women are agriculturists. Domestic work led the latter to take up the cultivation of plants, even as it led them to the other light feminine handicrafts; while the repair-





MANKIND'S PROGRESS IN HABITS OF DRESS

This series of typical pictures is intended roughly to illustrate the upward progress of man from the almost nude savage to the neatly and conveniently dressed gentleman of to-day. The Elizabethan dandy is, of course, as fully dressed as man can be, and is introduced only as indicating the great change of sartorial ideas in modern times.

him in his wanderings. But even then success was uncertain until a lucky chance led him to discover how to produce flames at will, by rubbing two sticks together or by twirling one against the other. These actions were originally performed for other purposes—to bore holes in a piece of wood, or to rub it into fibres; finally, one or the other was carried out with such vigour that a filament began to burn, and the discovery was made. Sparks from flint must have suggested a second method of kindling a fire; certainly the art of igniting soft filaments of wood by means of a spark—thus enabling the very smallest source of combustion to be used for human purposes—was known to man in the earliest times. The obvious



AN INGENIOUS INDIAN FIRE DRILL



ESQUIMAU MAKING FIRE BY FRICTION

results of the use of fire are means of obtaining warmth and of cooking food.

Self-defence had already led to the use of weapons, and, at the same time, the contrivances for hunting and fishing must have become more and more perfect. A very low degree of civilisation is that of races unacquainted with the bow and arrow, and familiar with club or boomerang only—who know how to make use merely of the weight of a substance, or, as in the case of the boomerang, of a peculiar means of imparting motion.

The time previous to the discovery of the art of working in metal was the Age of Stone. It was a natural transition period during which men began to learn to make use of the malleable metals, which could be hammered and beaten into various shapes, and finally discovered how to work in iron. Iron, by being placed in the fire, brought to a white heat, and smelted, was rendered capable of being put to such uses as were impossible in the case of brittle materials—bone or stone, for example. Many races never acquired the art of working even in the softer metals, and procured metallic implements from other peoples. The great importance of metal-working is borne out by the fact that the position of the smith, even in legendary times, has been of the utmost significance. The Ages of Stone and of Metal belong to the most important stages of civilisation.



THE GAUCHO'S WAY OF GETTING A LIGHT

Having made himself weapons, man did not employ them in fights with animals only; he also used them on his fellow-men, and at the same time arose the necessity for protective coverings—that is, the need for a means of neutralising the effect of weapons on the body. Thus followed the invention of the shield as a portable shelter, of the coat of mail and of the helmet, and of armour in general in all its different forms and varieties.

Together with weapons, utensils are characteristic of material culture. Utensils are implements used in the arts of peace, domestic and industrial; they are instruments which enable us to increase our power over Nature. Some utensils have undergone the same transformations as have weapons; others have their own independent history. Just as the edges of shells served as patterns for knife-blades, so did hollow stones, the shells of crustaceans or of tortoises, become models for dishes and basins. From the discovery of the imperviousness of dried earth, the potter's art developed; it became possible to mould clay into desired shapes while moist, and then, when dry, to employ it in its new form as a vessel for holding liquids; for that which has always been of the greatest importance in the making of utensils has been the taking advantage of two opposite characteristics displayed by a material during the different stages of its manufacture—plasticity, which admits of its first being moulded into various forms, and another quality, which causes it afterward to stiffen into solidity and strength.



Mansell

THE MAN WITH THE HOE

From the painting by Millet



Underwood & Underwood

THE WONDERFUL ADVANCE IN AGRICULTURE

These pictures present a striking contrast: the sullen clod with his primitive hoe, and the great Canadian reaper drawn by thirty horses, both in use to-day.

A further acqu sition was the art of braiding and plaiting, the joining together of flexible materials in such a way that they held together by force of friction alone. Thus coherent, durable fabrics may be produced, and by joining together small parts into an aggregate it is also possible to give a definite



The way in which man has protected himself against his foes in battle, and the gradual progress and decline of such methods, is shown in these pictures. The first is from the monuments of Nineveh, and shows the earliest form of chain mail. In the second we see the armour of the Roman legionary, while the third shows the heavy accoutrement of a mediæval warrior. A helmet of the same period is also shown.

MAN'S METAL DRESS: THE DEVELOPMENT OF ARMOUR FROM ANCIENT TO MEDIÆVAL TIMES

form to the whole and to adapt it to various uses. The quality of adaptability is especially developed in the products of plaiting, but the quality of imperviousness is lacking. Wickerwork was used not only in the form of baskets, but also in other shapes, as means for protection and shelter, as material for sails, as well as for tying and binding. The art of weaving arises from plaiting, and along with it come methods for spinning thread. It thus becomes possible to make an immense number of different useful articles out of shapeless vegetable material. Fibres are rendered more durable by being bound together, and textures formed from threads are adapted to the most various uses of life. This has an influence on the development of weapons also: bow-strings, slings, and lassos presuppose a rudimentary knowledge, at least, of the textile arts; and as knowledge increases, so are the products improved in turn.

Growth of the Textile Arts

Means for conveyance are also invented, that difficulties arising from distance may be overcome. At first men carry burdens upon their backs, heads, or shoulders, or in the hand, placing whatever they wish to transport in a utensil—a basket or a piece of cloth—thus producing a coherent whole; later, in order to render conveyance still more convenient, handles are invented. Objects are dragged along the ground, and from an effort to save them from injury the idea of sledges develops. Things that are round enough are rolled to their destinations; this leads to the invention of rollers and wheels, materials of required form being brought into combination with rudimentary agents of circular motion, and thus, through a rotary, a horizontal movement is obtained; and so the force of gravity is made use of, consistency of motion procured, and the hindering effect of friction overcome to the greatest possible degree.

Means for carrying inanimate objects once invented, it is not long before they are put to use for the conveyance of man himself; thus methods for the transportation of human beings are discovered in the same manner as the means for the carriage of goods.

In primitive times transportation by water is employed to a far greater extent than by land. Man learns how to swim in the same way as other animals do, by discovering how to repress his struggles, transforming them into definite, regular movements. The sight of objects afloat must, through unconscious analysis — experience —have taught men to make light, water-tight structures for the conveyance of goods upon water, and, later, for the use of man himself. The pole by which the first raft was pushed along developed into the rudder. Kayaks and canoes were built of wood, of bark, and

Man's First Boats



The invention of gunpowder and fire-arms rendered the protection of armour useless, and by the sixteenth century it had been greatly modified. The first of these pictures shows the slight armour worn by James II. The second is a suit of Japanese armour, discarded in our own time; while the last is a portrait of a present day Life-guardsman, whose cuirass is more ornamental than useful.

MAN'S METAL DRESS: THE GRADUAL MODIFICATION OF ARMOUR IN MODERN TIMES

of hides. In this connection, moreover, an epoch-marking invention was that of cloths in which to catch the wind—sails; and this, too, was a result of observation and experience. Man had known the effect of the wind upon fluttering cloth, to his loss, long enough before he hit upon the idea of employing it to his advantage. Finally he learned that by adjusting the sails he might make use of winds blowing from any direction.

Habitations are structures built in order to facilitate and assure the existence of man and the preservation of his goods. Indeed, the presence of caverns caused men to recognise the protective virtue of roof and wall, and the knowledge thus acquired gave rise in turn to the making of artificial caves. Holes beneath overhanging banks and precipices led to the building of houses with roofs extending beyond the rambling walls. Perhaps the protection afforded by leafy roofs, and the walls formed by the trunks of trees in primeval forests, may also have turned men's thoughts to the construction of dwellings. Houses of various forms were built, circular and rectangular; some with store-rooms and hearths. The use of dwellings presupposes a certain amount of consistency in the mode of living, the presence of local ties, and a general spirit favouring fixed and permanent residence.

Man's First Houses

Nomadic races use movable or temporary shelters only—waggons, tents, or huts.

The houses of stationary peoples become more and more firm and stable. At first they are built of earth and wickerwork, later of stone, and finally of bricks, as among the Babylonians. Foundations are invented, dwellings are accurately designed as to line and angle; the curved line is introduced, bringing with it arches both round and pointed, as may be seen in the remains of Roman and Etruscan buildings. The structure is adorned, and it becomes a work of art.

Home and Dress

But man also dwelt over the water, sometimes erecting his habitations upon rafts and floats, often upon structures that rose from beneath the surface. Thus was he, dwelling in communities of various sizes, secure from the attacks of land enemies. Even to-day there are uncivilised peoples who live over water, constructing their homes upon piles.

Clothing, however, was invented partly that in cold climates men might survive the winter, partly for the sake of ornament. In tropical regions man originally had no knowledge of the necessity for clothing: garments are masks, disguises; they bear with them a charm; they are the peculiar property of the medicine-men or of those who in the religious dance invoke the higher powers. Modesty is a derived

feeling ; it cannot exist until a high state of individualisation has been attained, until each man desires exclusive possession of his wife, and therefore wishes to shield her from the covetousness of other men. With the knowledge of dress, a desire for adornment, the effort to assist Nature in producing certain definite æsthetic effects, arises. Less uniformity in the appearance of the body is wanted, and this brings tattooing and the use of ornament into vogue. Later there is a fusing of these several aims ; clothing becomes protection, veil, and ornament in one, fulfilling all three functions at the same time.

Taming of the Wild

Another epoch-marking discovery, often arrived at while races are still in the state of subsistence by hunting, is the domestication of animals. This may have originated in the practice of provoking one beast to attack another in order to vanquish them both the more easily. Further development, bringing with it the idea of totemism and the notion that the soul of an animal dwells in man, drew him nearer to his animal neighbours ; and he sought them out as comrades and attendants. The taming of wild creatures arose from two sources—human egoism, and the innate feeling of unity and identification with Nature common to all savages ; hence on the one hand, the subjugation of animals, and, on the other, their domestication. Neither employment rendered it by any means less possible for men to hold animals in reverence, or to attribute to them virtue as ancestral spirits.

Such acquisitions of external culture accompany man during the transition from his subsistence by the pure products of Nature to the cultivation of natural resources, cattle-breeding and agriculture — occupations necessitating the greatest unrest and mobility. The simple life in Nature incites men to wander forth that they may discover land adapted for their support ; they rove about in search of roots as well as of living prey. The breeding of domestic animals also causes them to travel in the hope of finding ground for pasture ; nor does agriculture in its primitive form tend to establish permanence of residence, although it contains within itself latent possibilities of developing a settled life, one of the most important factors in the progress of mankind.

Only fixed, domestic peoples are able to create great and lasting institutions, to store up the results of civilisation for distant later races, and to establish a developed, well-organised commercial and civil life. The transition from nomadism to life in permanent residences has, therefore, been one of the greatest steps in the development of humanity. At the time of the beginnings of agriculture, however, man was still a periodic wanderer. According to the field-grass system of cultivation, seed is sown in hastily-cleared ground, which soon becomes exhausted and is then abandoned. A migration follows and new land is cleared. This system continues until men learn to cultivate part of the land in a district, allowing the remainder to lie fallow for

Mankind "Settling Down"



PRIMITIVE DWELLINGS OF TO-DAY: HOUSE-BOATS AT CANTON

Not only are there lake-dwellers to-day, as we have seen, but even large communities, as at Canton, in China, live in boats.



THE BEGINNINGS OF COMMERCE: PRIMITIVE PEOPLE BARTERING IVORY TUSKS AND BULL-HIDES

a time in order that the soil may recover; thus they remain fixed in their chosen district. Various circumstances—for example, the danger of enemies from without, and the difficulties attending migration—must have led to this change, the transition to the system of alternation of crops. The wanderings are confined to less extensive regions, the same fields are returned to after a few years, until finally the relation of patches under cultivation to fallow land is reduced to a system, and the time of wandering is past.

With fixed residence the forms of communities alter. The group settles in a certain district, homes are built close to one another, and the patriarchal organisation gives place to the village, which, with its definite boundaries, is thenceforth the nucleus of the social aggregate. Often several village communities have fields and forests in common, and a common ownership of dams and canals; Nature takes care that they do not become isolated, but unite together in close contact for common defence and protection. With agriculture is associated the working up of raw products. These are fashioned into materials for the support of life and for enjoyment; furniture for dwellings, clothing, tools, utensils, and weapons are made. For, however much agriculture favours a life of peace, so rarely does man live in friendship with his fellows that agricultural peoples also find it necessary to arm themselves for war.

The coming of the Craftsman

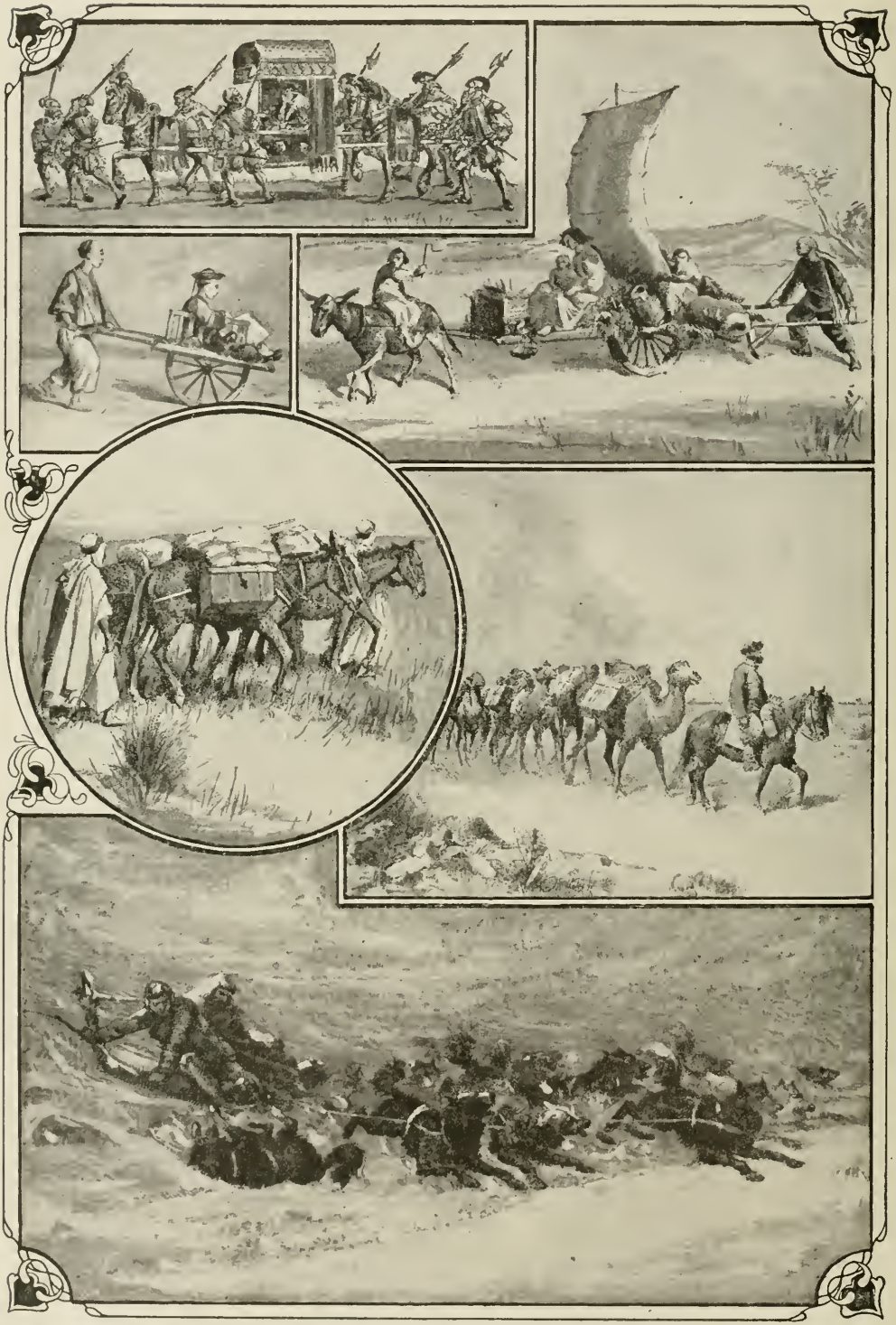
At first manufacture is not separated from farming; the agriculturist himself prepares the natural products, assisted by the members of his family. Later, it is easily seen that some individuals are more skilled than others; it is also recognised that skill may be developed by practice and that employments must be learned. Therefore it is requisite that special individuals of the community should prepare themselves for particular activities in the working up of raw products and pursue these activities in consistency with the needs of the society—trade or craft. The craftsman at first labours for the community; in every village the tailor, cobbler, smith, barber, and schoolmaster is supported by society at large. The craftsman receives his appointed income—that is, his portion of the common supply of food; and, in addition, every one for whom he expends his labour gives him something in compensation, or finds him food while employed about his house, until, finally, a systematic method of exchange is established; and with this another advance—an epoch for civilisation—is arrived at.

This is the division of labour. It is found advantageous not only that the craftsman be employed as he is needed, but also that he produce a supply of products peculiar to his trade; for the times of labour do not in the least harmonise with the times of demand. Although during the first periods of industrial life men sought more or less to adjust these factors, in later times they become wholly separate from one another. There is always, in addition, labour ready to be expended on casual needs; in more advanced phases of civilisation this condition of affairs is not avoided; but wherever labour can be disassociated from fortuitous necessity, the capacity for production is greatly increased. Commodities are manufactured during the best seasons for production and are preserved until the times of need; thus men become independent of the moment. Here also, as in other problems of civilisation, it is necessary to surmount the incongruities of chance, and to render all circumstances serviceable to our purposes.

The First Labour Problem

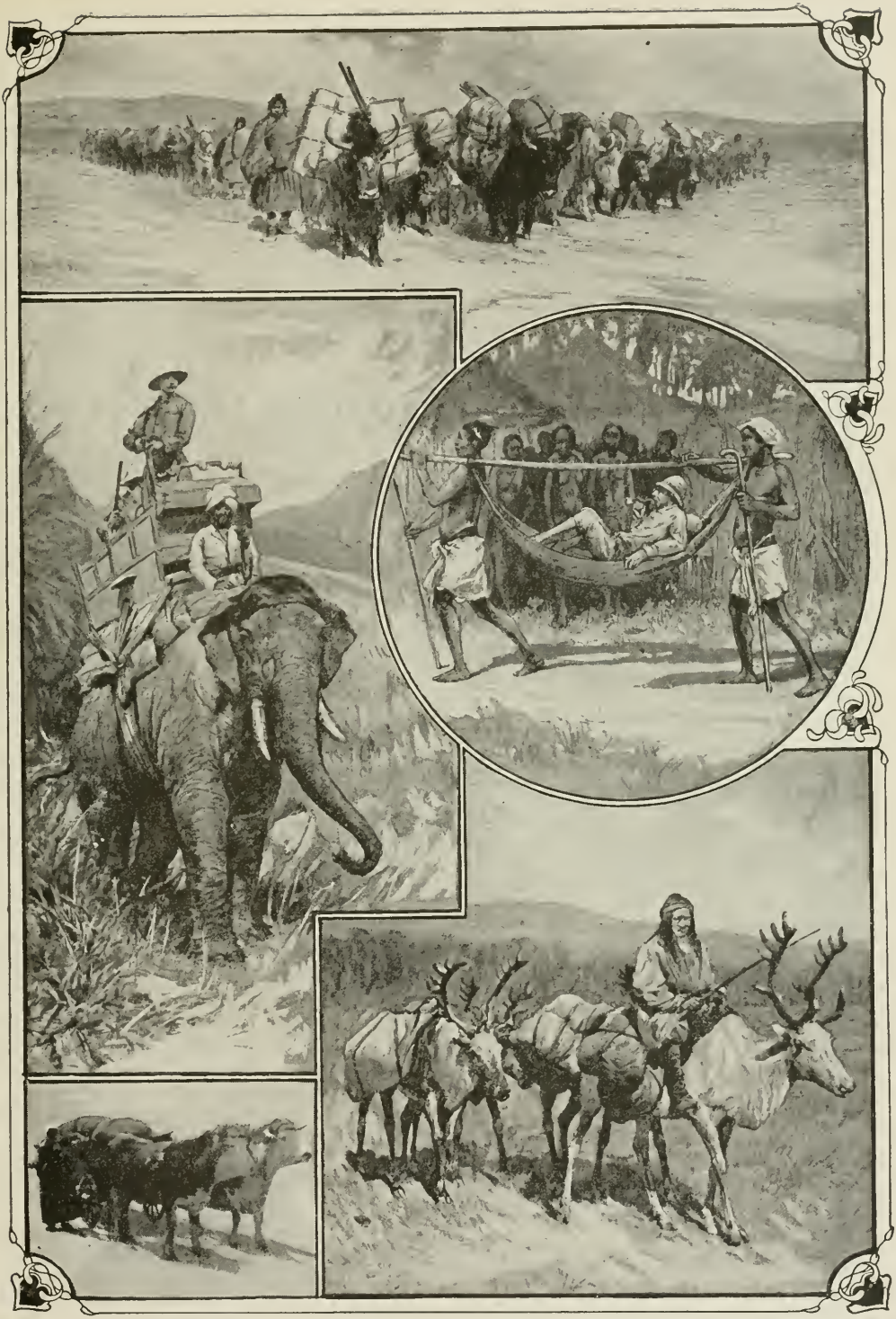
Exchange and division of labour are the great factors of the progress of a civilisation based upon industrialism. Crafts and trades develop and improve; greater and greater skill is demanded, and consequently the time of preparation necessary for the master craftsman becomes longer and longer. The worker limits himself to a definite sphere of production and carries his trade forward to a certain perfection. His wares will then be more eagerly sought for than those made by another hand; they are better, yet cheaper, for his labour is lightened by his greater skill. His various fellow craftsmen, and the agriculturist also, must exchange their goods for his; for the more specialised the work of an individual, the more necessary the community is to him, in order that he may satisfy all his various requirements. Exchange is at first natural; that is, commodities are traded outright, each

Crafts and Trades Developing



THE BEARERS OF MAN'S BURDENS: PRIMITIVE AND NATURAL METHODS OF CARRYING

These illustrations show a palanquin borne by horses; the Chinese single-wheel cart and the same assisted by a donkey and a sail; pack mules and camels; and a sledge drawn by Esquimau dogs.

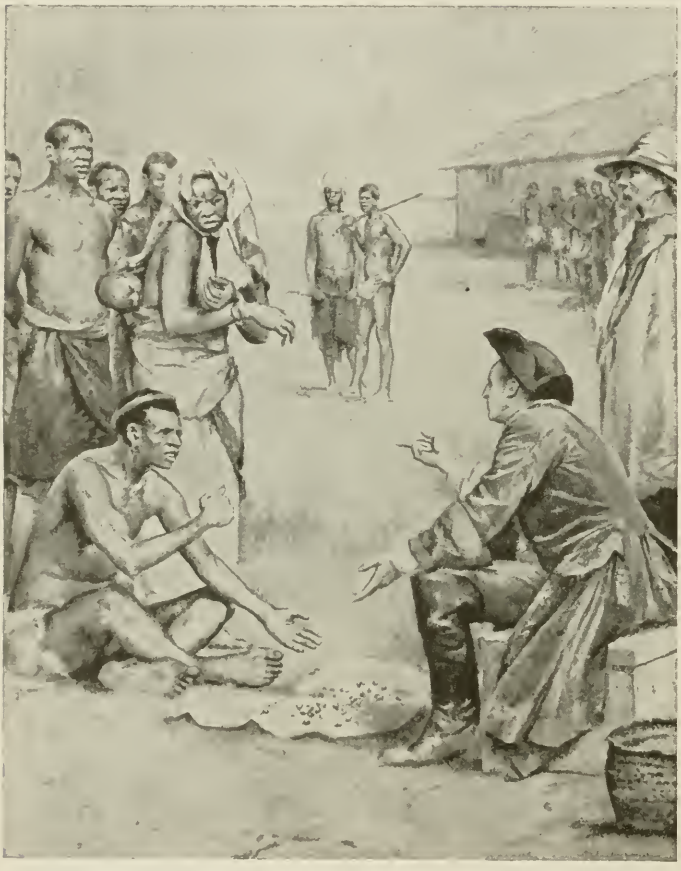


SOME METHODS OF CONVEYANCE IN VARIOUS AGES AND COUNTRIES

In this plate are illustrated a caravan of yaks; the elephant with a howdah; the African litter; reindeers as pack animals; and the familiar bullock waggon of France—a few of the many methods of carrying used by man.

individual giving goods directly in return for the goods he receives. The production of the community as a whole has become far richer, far more perfect. The labour of the organised society produces more than the activity of separate individuals.

Here, again, is shown the impulse of man to free himself from the exigencies of the moment, to lift himself above the fortuitous differences that arise between supply and demand. The more varied the production, the more difficult it becomes to find men who are able to offer the required commodity in exchange for what has been brought to them. An escape from this embarrassment lies in the discovery of a universal measure of exchange value and medium of exchange —money. Money is the means of adjustment which renders traffic between men independent of individual requirements.



PRIMITIVE MONEY: SELLING A SLAVE FOR COWRIES

Cowries, which are small shells, are a very primitive form of money, still used in parts of Africa and in Siam. They were formerly so used in India, where £150,000 worth used to be imported annually. In Africa 5,000 shells are equivalent to £1.

Mediums of exchange, particularly necessary for the carrying on of traffic between different communities, which exist in large quantities and can be divided up into parts, make their appearance in very early times. At first their values are more or less empirical, dependent upon the conditions of individual cases, until gradually a medium obtains general recognition and thus becomes money. The same need for surmounting the lack of uniformity in individual requirements has led the most different peoples in the world to the invention of money. Naturally, many different things have been employed as mediums of exchange; these vary according to geographical situations, conditions of civilisation, and the customs of races. Pastoral tribes at first employed cattle; but tobacco, cowries, strings of flat shells, bits of mother-of-pearl, rings, and hides are also used. At last it is found that metal is stable, durable, divisible, and of generally recognised value; and finally the precious metals take precedence of all others. Finally this form of money is adopted by all civilised races.

Division of labour originates in the development of the handicrafts, in the distinction made between the labour of working up the raw material and that of its production. With the help of a currency it leads to a complete transformation, not only of economic relations, but also of the social conditions of men.

Country becomes city; centres of population which rest upon an industrial basis arise; in many cases growth of the various manufacturing industries is furthered by unfavourable agricultural conditions. Such industrial centres require markets and market-places; it is necessary for the producers of raw materials to come to market from the country with their goods, in order that they may meet



Coin of Alexander the Great



The earliest inscribed coin, 7th century B.C.



Coin of Demetrius Poliorcetes, King of Macedonia



Early British coin



Coin of Tigranes, King of Armenia



Early British coin



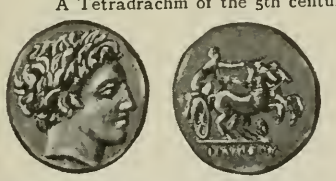
Coin of Mithridates the Great, King of Pontus



A Tetradrachm of the 5th century B.C.



A Tetradrachm of the 6th century B.C.



Gold coin of Philip II. of Macedon



Persian Gold Daric, 5th century B.C.



Early Roman bar money of the 4th century B C.



Iron bar money of South of England

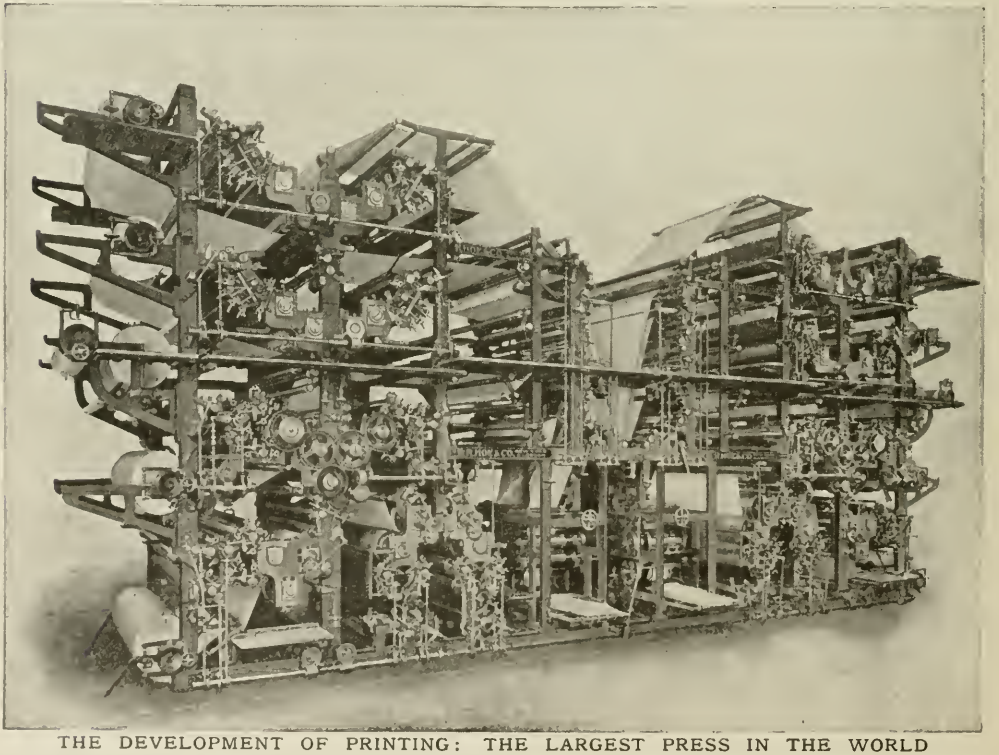
THE BEGINNING OF MONEY: SOME OF THE EARLIEST KNOWN COINS IN EXISTENCE

Of these coins, chiefly from the British Museum, the South England iron currency bars are perhaps most interesting. Our reproduction of these is one-tenth actual size. It will be noticed that the handles and the sizes vary.



THE BEGINNING OF PRINTING: STRADANUS'S PRINTING OFFICE AT ANTWERP IN THE YEAR 1600

From a very rare engraving in the British Museum



THE DEVELOPMENT OF PRINTING: THE LARGEST PRESS IN THE WORLD

How great has been the progress in the art of printing is seen from these two pictures. The modern Hoe printing press is a marvel of mechanism. The first editions of this History were printed on a similar machine.

together with the craftsmen of the city, and with other producers from the country who offer their wares in turn. The market town is the point of departure for further culture. Here, too, the endeavour to harmonise individual incongruities exists. Fruit is sent to market ; each man has his choice ; an exchange value is determined by means of comparison, through analysis of the individual prices which themselves do not furnish any rational determination of worth, and therefore expose both buyer and seller to chance. Thus a market-price develops. The city is the living agency promoting industry and exchange ; it brings its population into contact with the population of the country by means of the market, and prevents men from separating into isolated, unsympathetic, or even hostile groups.

Markets and Prices

Here industry flourishes—arts, crafts, and large manufactures. In the latter, division of labour is developed to a maximum degree, and production in factories derives a further impulse through the introduction of machinery. Machines, in contrast to implements and utensils, are inanimate but organised instruments for labour, requiring subordinate human activity only (attendance) so that they may impart force and motion in a manner corresponding with the designs of the inventor. Machinery is originally of simple form, dependent on water or wind for motive power—rude mills, and contrivances for the guiding of water in canals or conduits belong to its primitive varieties.

But man's power of invention increases, and in the higher stage of industrial evolution the facilities for labour are enormous. We have but to think of steam and of electricity with all their tremendous developments of power. Finally the discovery of the unity of force leads men to look upon Nature as a storehouse of energy and to devise means by which natural forces may be guided, one form of energy converted into another and transferred from place to place ; and thus man becomes almost all-powerful. He is not able to create, it is true, but he may at least mould and shape to his desire that which Nature has already formed. Thus the discovery how to direct the forces of Nature enables us again, according to the principle already cited, to escape the disabilities of human differentiation with its attendant incongruities.

The Use of Natural Forces

As already stated, division of labour leads to exchange ; exchange leads to commerce. Commerce is exchange on a large scale, organised into a system with special regard to the production of a store, or supply. The latter requires a certain knowledge of trade ; the centres of demand must be sought out, and the goods transported to these centres. In this way a fruitful reciprocal action develops ; and as production influences trade, so may trade influence production, governing it according to the fluctuations of demand, and leading to the creation of stores of commodities for which a future market is to be expected. Thus commerce presupposes special knowledge and special skill ; it develops a special technique through which it is enabled to execute its complicated tasks. Men who live by trade become distinct from craftsmen ; and the mercantile class results. Merchants are men whose task is to effect an organised exchange of natural and manufactured products. Commerce always displays an impulse to extend itself beyond the borders of single nations—not to remain inland only, but to become a foreign trade also ; for the products of foreign countries and climates, however valuable they may be, would be inaccessible except for commerce. Thus trade becomes both import and export. The first step is for the tradesman or his representative to travel about peddling goods, or for an owner of wares or money to offer capital to an itinerant merchant with the object that the latter may divide the profits with him later on. This leads to the sending of merchandise to a middleman, who places it on the market in a distant region—commission business. The establishment of a branch or agency in a foreign country, in order to trade there while in immediate connection with the main business house, follows ; and, finally, merchants deal directly with foreign houses without the intervention of middlemen, thus entering into direct export trade. This, of course, presupposes a great familiarity with foreign affairs and confidence in their soundness ; consequently it is possible only in a highly developed state of civilisation.

Boundless Growth of Commerce

Foreign trade is carried on overland by means of caravans, and, in later times,



"THE SHIP OF THE DESERT": THE CARAVAN IS THE OLDEST EXISTING MEANS OF COMMUNICATION BETWEEN PEOPLES

From J. F. Lewis's picture "The Halt in the Desert," in the South Kensington Museum [Photo, Mansell

by railways ; over sea, through a merchant marine—sailing vessels and steamships. The magnitude of commerce, its peculiar methods, and its manifold, varying phases combine to produce new and surprising phenomena : traffic by sea leads to insurance and to different forms of commercial associations ; intercourse by caravan gives rise to the construction of halting-stations, establishments for refreshment and repair, that finally develop into taverns and inns. And that which first arose from necessity is subsequently turned to use for other purposes : insurance is one of the most fruitful ideas of the present day ; hotels are an absolute necessity.

Birth of New Trades and Institutions

Commerce is able to bring further contrivances and institutions into being, here, again, overcoming individual incongruity by means of combination. Trade cannot always be carried on directly between the places of production and of consumption ; one district requires more, another less ; it would be difficult to supply all from one centre of distribution. Thus an intermediate carrying trade is developed, rendering the surmounting of obstacles less difficult and increasing the stability of the market. The demands of the middleman are compensated for by these advantages.

Thus the world's commerce develops, and that which is accomplished by market traffic in lesser districts is brought about by the concentrative influence of bourses, or exchanges, in the broadest spheres. Here, as in the smaller markets, the tendency is for all prices to seek a level, to become as independent as possible of individual conditions ; and so commerce between nations, and the possibility of ordering goods from the most distant lands, bring with them an adjustment : world prices are formed ; and to establish these is the business of the exchanges. The exchange is a meeting together of merchants for the transaction of business by purchase or sale. It has acquired still more the character of a world institution since men have been able to interchange advices by means of telegraph and telephone ; it is possible for the bourses of different countries to transact business with one another from moment to moment, so that the ruling prices of the world can be immediately known. It has already been stated that commerce leads to a taking up of residence in foreign countries ; it also leads to colonisation, and it is chiefly due to commerce that civilisation is introduced into foreign lands.

Commerce Brings the World Together

In earlier centuries the labour question was settled by means of the legal subjection of certain classes of men, until complete injustice was reached in slavery. The system was rendered still more efficient by making slave-ownership hereditary. Slavery originated in wars and man-hunting, in times when there were but few domesticated animals and no machines, when utensils were very imperfect and a more or less developed mode of life could only be conducted by means of the manual labour of individuals. Therefore, in order to obtain labourers, men resorted to force, introducing a slave population of which the individuals were either divided among households or kept in special slave habitations. The industry of the slave was often increased by the promise of definite privileges or private possessions. He was often granted a home and family life, and thus he became a bondman—burdened and taxed and bound to the soil, it is true, but otherwise looked upon as a man possessed of ordinary rights and privileges. Even during the days of slavery there were instances of emancipation, and the possibility was opened up of rising to the social position of a slave-owner.

Supply of Human Labour

The evolution of a free working class, with recompense for labour, is one of the most important chapters in the history of modern civilisation. The chief sphere of development is that of the crafts and trades. The power of guilds often induces legislation in their favour ; thus they become monopolies, and only such individuals as are members of an association may adopt its particular trade or craft as a profession. Sometimes the unity of a guild is broken, and the individual right to form judgments enters in place of the rules laid down by the corporation. From this results competition, which finally leads up to free competition. Through free competition, the encumbering rigidity of the guilds is avoided ; it leads to a high development of the individual, and is therefore a great source of progress ; it discloses the secrets of the craft, freeing men from deeply-rooted prejudices in regard to different vocations ; and it increases man's inventive capacity, producing new methods for carrying on trades and new combinations and connections.



THE PROMISE OF PEACE: THE HAGUE CONFERENCE OF THE NATIONS OF THE WORLD IN 1907

Nothing could more effectively illustrate the ideal of international peaceful co-operation to which hopeful historians look forward than this photograph of the representatives of all the leading Powers of the world, met together at The Hague, in the year 1907, to promote the amity of nations and the eventual abolition of war.

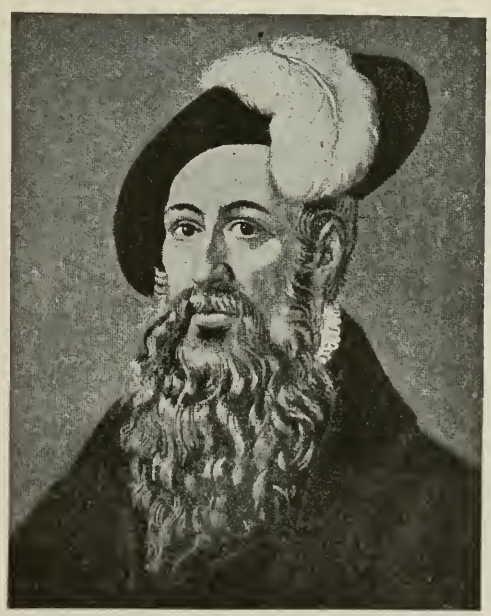
Professor JOSEPH KOHLER

THE HIGHER PROGRESS OF MANKIND

SPIRITUAL culture may develop in the directions of knowing and of feeling. These two forms of the manifestation of consciousness are originally not to be separated from each other; but as time goes on, a preponderance of one or the other becomes noticeable. Language is the first result of spiritual culture: the communication of thoughts by means of words (sound pictures of ideas). Language arises from the necessities of life, from the need for communication among the members of a social aggregate.

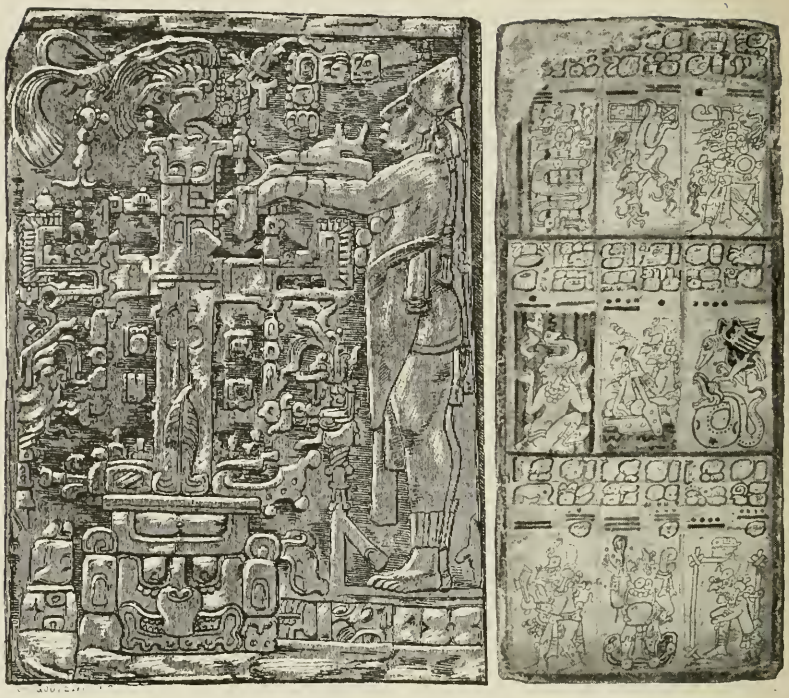
A much later acquisition, the art of writing, or the fixation of language in a definite, permanent form, stands in close connection with speech. Writing develops according to two systems: the one based on the symbollising or picturing of ideas—picture-writing, hieroglyphics; and the other on the breaking up of the speech-sounds of a language into a notation of syllables or letters—syllabic or letter writing. According to the first method thoughts are directly pictured; according to the second, sounds, not ideas, are represented by symbols — that is, the sounds which stand for the ideas are transformed into signs. The transition from sign to syllabic writing comes about in this manner: if, during its development, a language uses the same sound to express various conceptions, men represent this sound by one sign; and whenever a foreign word is reproduced in writing it is first separated into syllables, and the syllables are then pictured by the same signs as are employed to represent similar sounds—but different ideas—in the native speech. Thus symbols are employed more and more phonetically, and less and less meaning comes to be attached to them. This process must continue its development if the pronunciation changes as time goes on; the old writing, with its national symbol-method, may be retained; but with the changing of speech-sounds the new writing is altered; syllables are now represented by signs, and combinations of syllables are reproduced by means of a combination of their corresponding symbols. Thus phonetic writing was not an invention, but a gradual development. Together with the phonetic symbols, ideograms or hieroglyphs also exist, as in Babylonian. It is especially interesting, and indicative of the unity of the human mind, that the transition to syllabic writing has been arrived at independently by different races; the Aztecs, for example, exhibit a wholly independent development.

Communication by writing may be either single or private, or general and public; in the latter case plurality is attained through such methods as the affixing of bills and placards, or by means of transcripts or reproductions of the original copy. At first the latter are made in accordance with the ordinary methods of writing; and in slave-holding communities—Rome, for example—slaves who wrote to dictation were employed as scribes. The discovery of a method by which to obtain a plurality of copies through a single mechanical process was epoch-making. The printing-press



GUTENBERG, THE INVENTOR OF PRINTING
Nothing has eclipsed the printing press as an agency of man's intellectual and spiritual advancement.

has performed a far greater service to humanity than have most inventions; for, with the possibility of producing thousands of copies of a communication, the thoughts embodied in it become forces; they may enter the minds of many individuals who are either convinced or actually guided by them. Ideas become active through their suggestion on the masses of the population. This may lead to a one-sided rule of public opinion; but a healthy race will travel intellectually in many directions, and various beliefs supplement one another, struggle together, conquer, and are conquered. In this manner thoughts awaken popular movements, rousing a people to a hitherto unknown degree, and forcing men to think and to join issues. Thus the Press becomes a factor in civilisation of the very first importance. The necessity for periodic communication, together with curiosity that refuses to wait long for information, leads to the establishment of regularly recurrent publications; and thus, in addition to the book-press, the newspaper-press, that has learned how to hold great centres of population under its control, appears. Naturally this method of aiding the progress of civilisation has its disadvantages, as have all other methods; the conception of the world becomes superficial; individuality loses in character; not only a certain levelling of education, but also a levelling of views of life and of modes of thought, results. But, on the whole, knowledge is spread abroad as it never was before.



EXAMPLES OF AZTEC HIEROGLYPHIC SCULPTURE AND WRITING

The hieroglyphics and script of the Aztecs were independently developed. The first illustration is from a sculpture in Mexico, and the other is a small reproduction of a page of the Maya manuscript at Dresden. In both cases the symbolism is only imperfectly understood at present.

The Spreading of Ideas

Man, as a thinking being, craves for a conception of life; and in his inmost thoughts he seeks for an explanation of the double relationship of Man to Nature and of Nature to Man, striving to bring all into harmony. This he finds in religion.

Religion is belief in God; that is, belief in spiritual forces inseparable from and interwoven through the universe—forces that render all things distinct and separate, yet make all coalescent and firm, permeating all, and giving to every object its individuality. Man is impelled by Nature to conceive of the universe as divine. This idea exhibits itself universally among primitive folk in the form of animism—a belief that the entire internal and external world is animated, filled with supernatural beings that have originally no determinate nature, but which may appear in the most varied of forms, may vanish and may create themselves anew, as clouds arise from unseen vapour in the air. Spirits are supposed to be not far removed from man; families as well as individuals consider themselves to stand more or less in connection with them; and men, too, have a share in the invisible world

Man's Craving for Religion

when they have cast aside the garment of the body in dream or in death. Thus, every man is thought to have his protecting spirit, his *manitou*, that reveals itself to him through signs and dreams. Special incarnations, objects in which supernatural beings are inherent or with which they are in some way connected, are called "fetiches"; hence arises fetichism, in regard to which the strangest ideas were held in previous centuries when the science of anthropology was unknown. Trees, rocks, rivers, bits of wood, images of one's own making—any of these are thought capable of containing beings of divine nature. Naturally, the tree or the fragment of wood or of stone is not worshipped, as men formerly thought, but the spirit that is believed to have entered it. In many cases the belief approaches worship of Nature, especially among agricultural peoples. Divinity is recognised in the shape of factors essential to agriculture—sun, sky, lightning, thunder; these being the beneficent deities, in contrast to whom are the earth-spirits who bring pestilences, earthquakes, and other evils to mankind. Thus the cult is refined; spirits are no longer attached to fetiches, but men worship the heavens, and the earth also. Religion accompanies man from birth to death. Spirits both for good and for evil are supposed to hover about him at his very birth. The soul of some being—perhaps an animal, perhaps an ancestor—enters into the new-born child, and from this spirit he receives his name.

Beginnings of Nature Worship

The Realm of Shadows



Frith

THE GREAT BUDDHA AT KAMAKURA, IN JAPAN

Professor Kohler points out that in the history of the world's religions, although the belief in the omnipotence of God has become so widespread, it is not thought inconsistent that a Buddha, claiming to incarnate the Supreme Being completely within himself, should appear.

Oftentimes there is a new consecration at the time of marriage; often when an heir-apparent succeeds to the chieftainship. At his decease primitive folk believe that man enters the realm of shadows. At first he hovers over the sea or river of death, and often only after having passed through many hardships does he arrive in the new kingdom, where he either continues to live after the manner of his former existence, or, according to whether his life on earth has been good or evil, inhabits a higher or a lower supernatural sphere. To the dead are consecrated their personal possessions—horses, slaves, wives even—that they may make use of them during the new existence; men go head-hunting in order to send them new helpmates. On the other hand great care is often taken that the spirits of the departed, satisfied with their new existence, may no longer molest the world of the living: propitiative offerings are made; men avoid mentioning the name of the departed, that he may not be tempted to visit them with his presence; they seek to make themselves unrecognisable during the time immediately following his death, wear different clothes, and adopt other dwelling-places. Sometimes the light placed near the deceased for the purpose of guiding him back to his old

home is moved further and further away, so that his ghost, unable to find the right path, shall never return.

Thus the belief in spirits encompasses primitive man, following him step by step.

From animism develops worship of heroes and polytheism, with their attendant mythological narrations. The idea of the unity of the supernatural world becomes lost; and the indefinite forms of spirit become separate, independent beings, that are developed more and more in the direction of the souls either of animals or of men. This splitting up of the deity, which destroys the tendency toward unity in religion, is followed by a reaction that comes about partly through a belief in creation by a father of the gods, partly through acceptance of a historical origin of the mythological world from a single source (theogonic myths), and partly through direct banishment of the plurality of gods and a new formation of the belief in a unity according either to theistic or to pantheistic ideas. In spite of the conception of a world permeated and pervaded by God alone, the belief that certain persons and places are more powerful in respect to the divinity than others is retained; and the appearance from time to time of a Buddha who incarnates and manifests the Supreme Being directly and completely within himself—in a special manner apart from other natural phenomena—is also not looked upon as inconsistent.

The Belief in Many Gods

Happiness found in Religion

Religion is a thing of the emotions, not merely in the sense of having its origin in fear, or in the remembrance of lasting sensations derived from visions or dreams, but emotional in so far that it satisfies the necessity felt by men for a consistent life-conception—not an intellectual but an emotional conception. It is not the matter-of-fact desire for knowledge that finds its expression in religion, but the joy of the heart in a supreme power, the call for help of the needy, and the consciousness of our own insignificance and our



A STRANGE RELIGIOUS RITE: FUNERAL SACRIFICE OF THE TODAS IN SOUTHERN INDIA

The elaborate and extraordinary funeral rites of the Todas illustrate admirably the older notions of life and death. A funeral endures for several days; the body is cremated; last of all the buffaloes of the deceased are slaughtered at the grave and thought to enter into mystic reunion with their master. In olden times a whole troop would be slaughtered, but under British influence the number has been limited to one for a common person and two for a chief.



NOAH'S SACRIFICE
From the painting by Daniel Maclise, R.A.

mortality. Judgment is not yet abstracted from the other psychic functions; indeed, it really retires behind the emotions.

When men thus believe in divinity, if the belief have an active influence on the emotions, it follows that the individual must establish some connection between himself and the object of his worship. This is brought about through certain actions, or through the creation of circumstances in which special conditions of consecration are perceived, and therewith the possibility of a close relationship with the Supreme Being. The acts through which this relationship may be brought about, taken collectively, are embraced in the word "worship," and if performed according to a strict system they are called "rites." Sacrifice has an important place among the ceremonies observed in accordance with ritual. It is based on a conception of the wants and necessities of the higher beings, and, in later times, is refined into a representation of man's ethical feelings—unselfishness and gratitude, which give pleasure to the Deity and thus contribute to its happiness. But sacrifice does not retain its unselfish character for any great length of time. Man thinks of himself first: he makes offerings to the good spirits, but more particularly to the evil gods, in order to pacify their fury and appease their evil desires. Sacrifices are also offered to the dead, and from such offerings and memorials is developed the idea of a "family" or "clan," which outlives the individual.

The Basis of Worship

The Growth of the Priesthood

Thus, emotion is the principal active agent; but intellectual power also must gradually lay its hold on the system of belief. The principles discovered are formulated into a science; and the cultivation of this science becomes the special duty of the priesthood, often as a secret art—esoteric system—in which concealment is conducive to the maintenance of the exclusiveness and peculiar power of the priest class. The science becomes

partly mythologic-historical, partly dogmatic, and partly ritualistic.

The artistic instinct develops partly in connection with worship, partly in the direction of its practical application to life; and although no very sharp line of distinction is drawn between the two tendencies, the germ at least of the difference between the fine and the industrial arts is thus in existence from the very earliest times. Worship gives rise to images and pictures, at first of the very roughest form. They are not mere symbols; they are the garments or habitations with which the spirit invests itself. The spirit may take up its abode anywhere according to the different beliefs of man—in a plant, an animal, a stone, above all, in a picture or effigy that symbolically reflects its peculiarities. Therefore, the ghosts of ancestors are embodied in ancestral images. Just as skulls were reverenced in earlier times, in later days the images of the dead (*korwar*) are worshipped. Such images are the oldest examples of the art of portraiture; and the oldest dolls are the rude puppets which according to the rites of many races—the American Indians, for example—widows must wear about them as tokens, or as the husks or wrappers of their husbands' doubles.

Out of Religion Came Art

Religion itself becomes poetry. The belief in the identity of spirits of the departed with animals, and the myths of metamorphosis, take the form of fables and fairy tales; the cosmogonic and theogonic conceptions develop into mythologies; hero sagas become epics; the myths of life in Nature become a glorification of the external world, an expression of unity with Nature, and thus a form of lyric poetry.

Everyday life, too, demands artistic expression. At first the childish passion for the changing pictures that correspond with different ideas of the imagination joins with the desire to impress others, and finery in dress and ornamentation result. This has developed in every clime. Tattooing arises not only from a religious motive, but also from the desire for ornament. The painting of men's bodies, the often grotesque ideas, such as artificial deformation of the head, knocking out and blackening of teeth, ear ornaments and mutilation of ears, pegs thrust through the lips, and various methods of dressing the hair, may be in part connected with religious conceptions, for here the most varied of motives co-operate to the same end. Yet, on the other hand, there is no doubt that they are also the outcome of a craving for variation in form and in colour. In the same way the dance is not only an act of worship; it is also a means of giving vent to latent animal spirits: thus, dances are often expressions of the tempestuous sensual instincts of a people.

Artistic Expression of Life

The dance exhibits a special tendency to represent the ordinary affairs of life in a symbolic manner; thus there are war and hunting dances, and especially animal dances in which each of the participants believes himself to be permeated by the spirit of some animal which throughout the dance he endeavours to mimic. In this way dramatic representation, which is certainly based on the idea of personification, on the notion that a man for the time being may be possessed by the spirit of some other creature that speaks and acts through him, originates. Thus arose the primitive form of masques, in which men dressed themselves up to resemble various creatures, real or imaginary, as in the case of the animal masques of old time; for according to the popular idea the spirit dwells in the external, visible form, and through the imitation or adoption of its outward appearance we become identified with the spirit whose character we assume. Among many races not only masks proper were worn, but also the hides and hair or feathers of the creatures personated. Dramatic representation was furthered by the dream plays—especially popular among the American Indians—in which the events of dreams are adapted for acting and performed. Even as men seek illumination in dreams as to questions both divine and mundane, so do they anticipate through dreams the dramatic representations which shall be performed on holidays as expressions of life.

The Birth of the Drama

Play is a degeneration of the dance, and it arises less from the instinct for beauty than from a desire to realise whatever entertainment and excitement may be got from any incident or occurrence. From another special inclination originate those satirical songs of Northern peoples, written in alternating verses,



SAVAGE DANCES: THE FAR-OFF BEGINNINGS OF THE DRAMA

The dance is an effort to give symbolic expression to affairs and moods of everyday life. Thus the Zulu wedding dance is self-evident in its purpose. The second illustration depicts a strange religious dance of the Australian natives, associated with totemism or animism. The third picture shows dancers in Kandy endeavouring to banish evil spirits, and the last illustrates an Australian corroboree. From such sources the drama has been slowly evolved.

in which the national tribunal and the voice of the people are given expression at the same time. Thus they have a truly educative character. These are the preliminary steps to the free satire and humour that gleam through the lives of civilised peoples, now like the flicker of a candle, now like a purifying lightning flash, freeing men from life's monotony, and illuminating the night of unsolved questions.

Art & Play in the Life of Man

Capacity for organised play is a characteristic that lifts man above the lower animals. The expression of individuality without any particular object in view, the elevation of self above the troubles of life, and free activity, uncoerced by the necessities of existence, are characteristic both of play and of art. Thus play, as well as art, exhibits to a pre-eminent degree man's consciousness of having escaped, if only temporarily, from the coercion of environing nature ; being without definite object, it proves that he can find employment when released from the pressure of the outer world—that is, when he is momentarily freed from his endeavour to establish a balance between himself and the necessities of life, with a view to overcoming the latter. Man stands in close connection with his environment and with the immutable laws of nature ; but in play and in art he develops his own personality—a development that neither in direction nor in object is influenced by the outer world and its constraint.

The step that leads to the overcoming of custom is the recognition of right. "Right" is that which society strictly demands from every individual member. Not all that is customary is exacted by right ; a multitude of the requirements of custom may be ignored without opposition from the community as a whole, although, of course, detached individuals may express their displeasure. The aggregate, however, grants immunity to all who do not choose to follow the custom. In other words, the separation of custom from right signifies the development of a sharper line of demarcation between that which is and that which ought to be. In primitive times "is" and "ought to be" are fairly consonant terms ; but gradually a spirit of opposition is developed ; cases arise in which custom is opposed, in which the actions of men run counter to a previous habit. Man is conscious of the possibility of raising himself above the unreasoning tendencies toward certain modes of conduct, and he takes pleasure in so doing—the good man as well as the evil. Whoever oversteps the bounds of custom, even through sheer egotism, is also a furtherer of human development ; without sin the world would never have evolved a civilisation ; the Fall of Man was nothing more than the first step toward the historical development of the human race.

Fall of Man and Rise of the Race

This leads to the necessity for extracting from custom such rules as must prove advantageous to mankind, and this collection of axioms—which "ought to be"—becomes law.

The distinction between right and custom was an important step. The relativity of custom was exposed with one stroke. Many, and by no means the worst members of communities, emancipate themselves from custom. It is the opening in the wall through which the progress of humanity may pass. Nor do the demands of right remain unalterable and unyielding. A change in custom brings with it a change in right ; certain rules of conduct gradually become isolated owing to the recession of custom, and to such an extent that they lose their vitality and decay. And as new customs arise, so are new principles of right discovered. In this manner an alteration in the one is a cause of change in the other—naturally, in conformity with the degree of culture and contemporary social relations. Custom and right mutually further each other, and render it possible for men to adapt themselves to newly acquired conditions of civilisation.

Custom, Right, and Morality

Together with right and custom a third factor appears—morality. This is a comparatively late acquisition. It, too, contains something of the "ought to be," not because of the social, but by virtue of the divine authority or order based on philosophical conceptions. Morals vary, therefore, as laws vary, according to peoples and to times. The rules of morality form a second code, set above the social law, and they embody a larger aggregate of duties. The reason for this is that men recognise that the social system of rules for conduct is not the only one, that it is only relative and cannot include all the duties of human beings, and that over and beyond the laws of society ethical principles exist.

Naturally conflicts arise between right and morals, and such struggles lead to further development and progress.

The late appearance of ideas of morality proves that ethical considerations were originally foreign to the god-conceptions. The spirits, fetiches, and world-creators of different beliefs are at first neutral so far as morals are concerned; myths and legends are invented partly from creation theories, partly from historic data, and partly through efforts of the imagination. In primitive beliefs there is no trace of an attempt to conceive of deities as being good in the highest—or even in a lower—sense; and it would not be in accordance with scientific ethnology to appraise, or to wish to pass judgment on, religions according to the point of view of ethics. Not until the importance of morality in life is realised, and the profound value of a life of moral purity recognised, do men seek in their religious beliefs for higher beings of ethical significance, for morally perfect personalities among the gods.

Different elements of civilisation vary greatly in their development in different civilised districts; one race may have a greater tendency toward intellectual, another toward material culture. No race has approached the Hindoos in philosophic speculation, yet they are as children in their knowledge of natural science. One people may develop commerce to the highest extent, another poetry and music, a third the freedom of the individual. The language of the American Indians is in many respects richer and more elegant than English. Therefore nothing is farther from the truth than to say that, in case one institution of civilised life is found to exist in a hunting people, another in an agricultural race, or the one in an otherwise higher, and the other in an otherwise lower nation or tribe, the institution in question must have reached a state of perfection corresponding with the general development of the people possessing it. According to this, the monogamic uncivilised races were further advanced than the polygamous Aryans of India and the Mohammedans; and the Polynesians, with their skill in the industrial arts and their dramatic dances, perhaps in a higher state of civilisation than Europeans!

Development fulfils itself in communities of men. Except in a human aggregate it cannot come to pass; for the germs of development which are brought forth by the potentiated activity of the many may exist only in a society of individuals.

It has therefore been a significant fact that from the very beginning men have joined together in social aggregates, partly on account of an instinctive impulse, partly because of the necessity for self-defence. Thus it came about that primitive men lived together in wandering, predatory hordes, or packs. The individuals were bound to one another very closely; there was no private life; and the sex-relationships were promiscuous. Men not only dwelt together in groups, but the groups themselves assimilated with one another, inasmuch as marriages were reciprocally entered into by them. So far as we are able to determine, one of the earliest of social institutions was that of group-marriage. Individuals did not first unite in pairs, and then join together in groups—such would soon have fallen asunder: on the contrary, group-marriage itself created the bond that held the community together; the most violent



Underwood & Underwood

THE EMBLEM OF A TRIBE: ALASKAN INDIAN TOTEM
This mysterious "totem" distinguishes a family or tribe of the old Hydah Indians and is erected at Wrangel in Alaska.



THE BEGINNINGS OF MONARCHY: AFRICAN CHIEF SEATED IN STATE AMONG HIS HEADMEN
The tribal state has a fixed form of government. The chiefs or patriarchs of the various families stand at the head of affairs, the position of chief being either hereditary or elective. In most cases, however, it is determined by a combination of both methods, a blood descendant being chosen, provided he is able to give proof of his competence.

instinct of mankind not only united the few but the many, indeed, complete social aggregates.

Group-marriage is the form of union established by the association of two hordes, or packs, according to which the men of one group marry the women of the other; not a marriage of individual men with individual women, but a promiscuous relationship, each man of one group marrying all the women of the other group—at least in theory—and vice versâ; not a marriage of individuals, but of aggregates. Certainly with such a sex-relationship established, sooner or later regulations develop from within the community, through which the marital relationships of individuals are adjusted in a consistent manner; but the principle first followed was, as community in property, so community in marriage; and this must of itself lead to kinships entirely different from those with which we are familiar.

Group-marriage was closely bound up with religious conceptions; single hordes, or packs, considered themselves the embodiment of a single spirit. And since at that time spirits were only conceived of as things that existed in nature, the horde felt itself to be a single class of natural object—some animal or plant, for example; and the union of one pack with another was analogous to the union of one animal with another. Each group believed itself to be permeated by the spirit of a certain species of animal, borrowed its name thence and the animal species itself was looked upon as the protecting spirit. The ancestral spirit was worshipped in the animal, and the putting to death or injuring of an individual of the species was a serious offence.

Such a belief is called Totemism. "Totem"—a word borrowed from the language of the Massachusetts Indians—is the natural object or animal assumed as the emblem of the horde or tribe, and correspondingly the group symbolised by the class of animal or natural object is called a Totem-group.

This belief led to a close union of all who were partakers of the spirit of the same animal; it also strictly determined which

groups could associate with one another. And as the totem-group mimicked the animal in its dances, and fancied itself to be possessed by its spirit, it also ordered the methods of partaking of food, and all marriage, birth, and death ceremonies in accordance with this conception. It is said that, the totem being exogamous, marriages were not possible within the totem, but only without it. Precisely so; for the original conception was not that individuals formed unions, but that the whole totem entered the marriage relationship; a single marriage would have been considered an impossibility.

To which totem the children belonged—to the mother's, to the father's, or to a third totem—was a question that offered considerable difficulty. All three possibilities presented themselves; the last mentioned, however, only in case the child belonged to another group, a sub-totem, and in that event its descendants could return to the original totem.

The First Ideas of Kinship

Descent in the male or in the female line occasioned in later times the rise of important distinctions between nations. If a child follow the mother's totem, we speak of "maternal kinship"; conversely, of "paternal kinship" in case of heredity through the father. Which of these is the more primitive, or did tribes from the very first adopt either one or the other system, thus making them of equal antiquity, is a much-vexed question. There is reason to believe that maternal kinship is the more primitive form, and that races have either passed with more or less energy and rapidity to the system of descent through males, or have kept to the original institution of maternal succession. There are many peoples among whom both forms of kinship exist, and in such instances the maternal is undoubtedly the more primitive; from this it appears very probable that development has thus taken place, the more so since there are traces of maternal kinship to be found in races whose established form is paternal.

As time passed, marriage of individuals developed from group-marriage or totemism. Such unions may be polygamous—one man having several wives—or polyandrous—one woman having several husbands. Both forms have been represented in mankind, and, indeed, polygamy is the general rule among all races, excepting Occidental civilised peoples. The form of marriage toward which civilisation is advancing is certainly monogamy; through it a complete individual relationship is established between man and wife; and although both individualities may have independent expression, each is reconciled to the other through the loftier association of both. Nearly associated with monogamy is the belief in union after death; it arises from the religious beliefs prevalent among many peoples. Among other races there is at least the custom of a year of mourning, sometimes for husband, sometimes for wife, often for both.

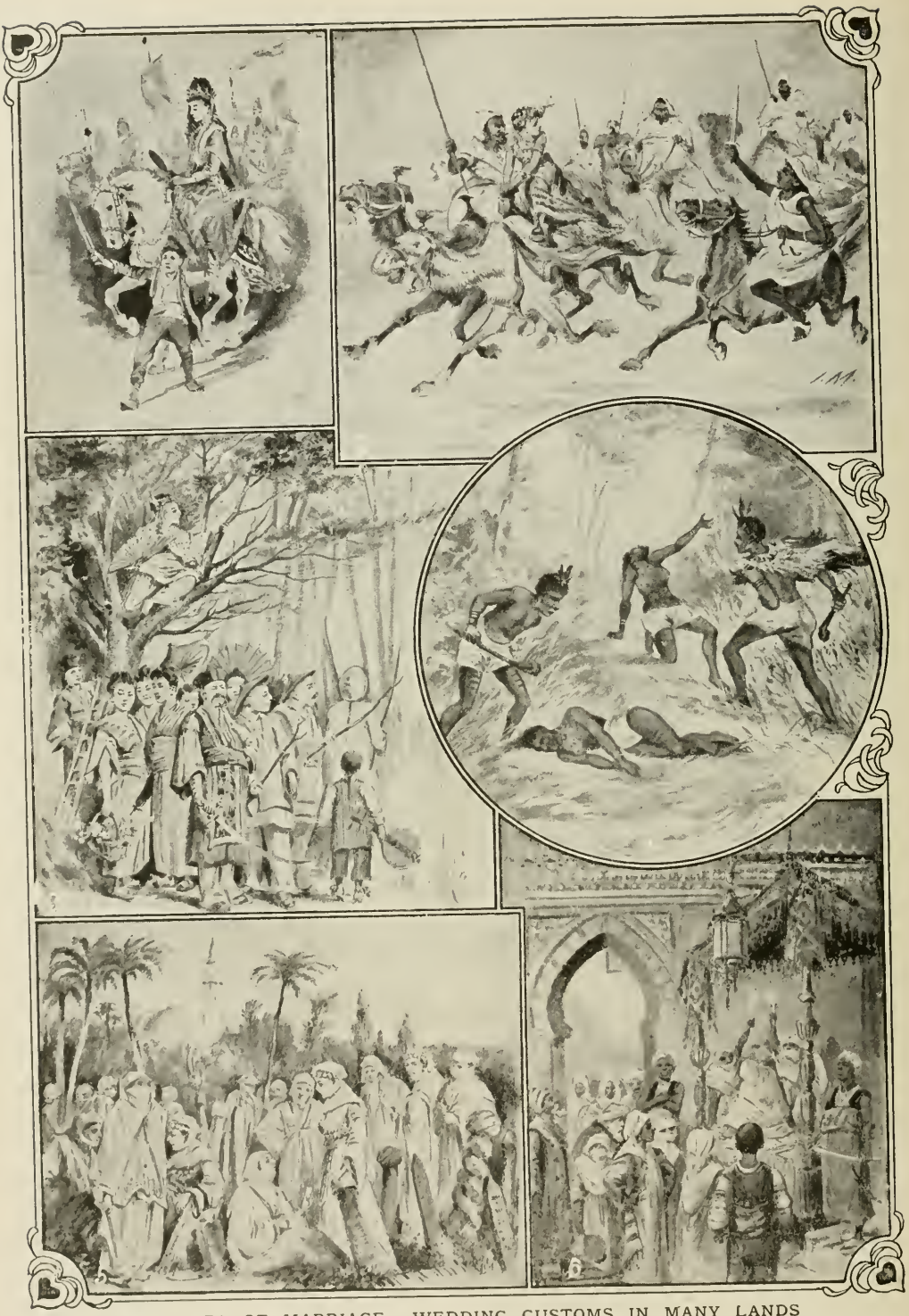
Growth of Marriage

Marriage of individuals has developed in different ways from group or totem marriage: sometimes it was brought about through lack of subsistence occasioned by many men dwelling together; sometimes it arose from other causes. One factor was the practice of wife-capture: whoever carried off a wife freed her, as it were, from the authority of the community, and established a separate marriage for himself. Marriage by purchase was an outcome of marriage by capture and of the paying of an indemnity to the relatives of the bride; men also learned to agree beforehand as to the equivalent to be paid. The practice of acquiring wives by purchase developed in various directions, especially in that of trading wives and in the earning of wives by years of service. Gradually the purchase became merely a feigned transaction; and a union of individuals has evolved—now sacerdotal, now civil in form—from which every trace of traffic and of exchange has disappeared.

Thus already in early times marriage had become ennobled through religion. It is a widespread idea that through partaking of food in common, blood-brotherhood, or similar procedures, a mystic communion of soul may be established; and in case of marriages brought about by the mediation of a priesthood the priest invokes the divine consecration. Marriage is thereby raised above the bulk of profane actions of life; it receives a certain guarantee of permanency; indeed, in many cases, by reason of the mystic communion of souls, it is looked upon as absolutely indissoluble.

Religion Ennobles Marriage

The ownership of property also was originally communistic, and the idea of individual possession has been a gradual development. The idea of the ownership



THE IDEA OF MARRIAGE: WEDDING CUSTOMS IN MANY LANDS

In countries where women are subservient to men the idea of marriage by capture or by compulsion prevails. The Bedouin bride (2) makes a pretence of escaping and is pursued by the bridegroom and his kinsmen. Some Africans (4) show their love by knocking down their prospective brides. The Moorish bride (6) shrouded and seated in bed is an object of curiosity. 1, 3, and 5 represent respectively the marriage customs of Persians, Chinese, and Moslems.

of land, especially when developed by agricultural peoples, is of a communistic nature; and, from common possession, family and individual ownership gradually comes into being. It is brought about in various ways, chiefly through the division of land among separate families: at first only temporary, held only until the time for a succeeding division arrives; later, owned in perpetuity. Nor was it a rare method of procedure to grant land to any one who desired to cultivate it—an estate that should be his so long as he remained upon it and cultivated the soil, but which reverted to the community, on his leaving it. There gradually developed a constant relationship between land and cultivator as agriculture became more extended and lasting improvements were effected on the soil. Land became the permanent property of the individual; it also became an article of commerce.

Ownership of movable property even was at first of communistic character. Clothing and weapons, enchantments effectual for the individual alone, such as medicine-bags or amulets, were, to be sure, assigned to individuals in very early times; but all property obtained by labour, the products of the chase or of fishing, originally belonged to the community, until in later days each family was allowed to claim the fruits of its own toil, and was only pledged to share with the others under certain conditions. Finally, individuals were permitted to retain or to barter property which they had produced by labour; and exchange, especially exchange between individuals, attained special significance through the division of labour.

The individualisation of the ownership of movable property was especially furthered by members of families performing other labour, outside the family, in addition to their work within the family circle. Although the fruit of all labour accomplished within the family was shared by the members in common, the results of work done outside became the property of the particular individual who had performed the labour. Consequent expansion of the conception of labour led men to one of the greatest triumphs of justice, to the idea of establishing individual rights in ideas and in combinations of ideas, to the recognition of intellectual or immaterial property—right of author or inventor—one of the chief incentives to modern civilisation.

On the other hand, individual rights in transactions led to conceptions concerning obligations and debts. Exchange, either direct or on terms of credit, brought with it duties and liabilities for which originally the persons and lives of the individuals concerned were held in pledge, until custody of the body—which also included possession of the corpse of a debtor—was succeeded by public imprisonment for debt, and finally by the mere pledging of property, imprisonment for debt having been abolished—a course of



THE CHURCH AND MARRIAGE: A WEDDING SCENE
In very early times marriage had assumed a religious significance and came to be regarded among the sacred as opposed to the secular functions of life.

development through which the most varied of races have passed.

The relation of the individual to his possessions led men at first to place movable property in graves, in order that it might be of service to the departed owner during the life beyond; hence the universal custom of burning on funeral pyres not only weapons and utensils, but animals, slaves, and even wives. In later times men were satisfied with symbolic immolations, or possessions were released from the ban of death and put into further use. The property of the deceased reverted to his family, and thus the right of inheritance arose. There was no right of inheritance during the days of communism; on the death of a member of the family a mere general consolidation of property resulted; with individual property arose the reversion of possessions to the family from which they had been temporarily separated. Thus property either reverted to the family taken as a whole, or to single heirs, certain members of the family; hence a great variety of procedure arose. Up to the present day inheritance by all the children, or inheritance by one alone, exists in Eastern Asia as in Western nations.

Rights of Property

In like manner criminal responsibility was originally collective; the family or clan was held responsible for the actions of all its individual members except those who were renounced and made outcasts. Such methods of collective surety still exist among many exceedingly developed peoples; but the system is gradually dying away, the tendency being for the entire responsibility to rest upon the individual alone.

The state is a development of tribal, or patriarchal, society. The tribal group is a community of intermarried families, all claiming descent from a common ancestor. From tribal organisation the principle is developed that participation in the community is open only to such individuals as belong to one or other of the families of which it is composed; and the political body thus made up of individuals related either by blood or through marriage is called a patriarchal, or tribal, state. This form of community was enlarged even in very early times, advantage being taken of the possibility of adopting strangers into the circle of related families, and of amalgamating with them. Still, the fundamental idea that the community is composed of related families always remains uppermost in the minds of uncivilised peoples. The tribal state gradually develops into the territorial state. The connection of the community with a definite region becomes closer; strange tribes settle in the same district; they are permitted to remain provided tribute is paid and services are performed, and are gradually absorbed into the community, the strangers and the original inhabitants—plebeians and patricians—united together into one aggregate. Thus arises the conception of a state which any man may join without his being a member of any one of the original clans or families.

Beginning of the Community

In this way the idea of a state becomes distinct from that of a people bound together by kinship, the latter being especially distinguished by a certain unity of external appearance, custom, character, and manner of thought. This is not intended to suggest that an amalgamation of different race elements in a state and an assimilation of different modes of thought and of feeling are not desirable, or that a spirit analogous to the sense of unity in members of the same family is not to be sought for; such a condition is most likely to be attained if a certain tribe or clan take precedence of the others, as the most progressive, to which the various elements of the people annex themselves.

Growth of the Idea of a State

The tribal state has a fixed form of government. The chiefs or patriarchs of the various families stand at the head of affairs, the position of chief being either hereditary or elective. In most cases, however, it is determined by a combination of both methods, a blood descendant being chosen provided he is able to give proof of his competence. In addition there is often the popular assembly. In later times many innovations are introduced. Passion for power united to a strong personality often leads to a chieftainship in which all rights and privileges are absorbed or united in the person of one individual; so that he appears as the possessor of all prerogatives and titles, those of other men being entirely secondary, and all being more or less dependent upon his will. Religious conceptions, especially, have had great influence in this connection. Nowhere is this so clearly shown as in "teknonymy," an institution formerly prevalent in the South Pacific



"IN THE NAME OF JUSTICE": SOME OLD METHODS OF TORTURE

These pictures represent: 1, Roman gaolers cutting off a Christian's ears. 2. The cangue as still used in China. 3. A prisoner on the rack in Mediæval England. 4. Torture of the Iron Chair. 5. The ordeal of fire and branding.

islands, according to which the soul of the father is supposed to enter the body of his eldest son at the birth of the latter, and that therefore, immediately from his birth, the son becomes master, the father continuing the management of affairs merely as his proxy. Other peoples have avoided such consequences as these by supposing the child to be possessed by the soul of his grandfather, therefore naming first-born males after their grandfathers instead of after their fathers. Another outcome of the institution of chieftainship is the chaotic order of affairs which rules among many peoples on the death of the chieftain, continuing until a successor is seated on the throne—a lawless interval of anarchy followed by a regency.

Tribes and their Chiefs

The power of a chieftain is, however, usually limited by class rights; that is, by the rights of sub-chieftains of especially distinguished families, and of the popular assembly, among which elements the division of power and of jurisdiction is exceedingly varied. These primitive institutions are rude prototypes of future varieties of coercive government, of kingship, either of aristocratic or of republican form, in which the primitive idea of chieftainship as the absorption of all private privileges is given up, and in its place the various principles of rights and duties of government enter.

Class-differentiation with attendant privileges and prerogatives is especially developed in warlike races, and in nations which must be ever prepared to resist the attacks of enemies, by the establishment of a militant class. The militant class occupies an intermediate position between the governing, priest, and scholar classes on the one hand, and the industrial class—agriculturists, craftsmen, merchants—on the other. Employment in warfare, necessary discipline, near association with the chieftain, and the holding of fiefs for material support give to this class a unique position. Thus the warrior castes developed in India, the feudal and military nobility in Japan, the nobility in Germany, with obligations and service to feudal superiors and to the Court. This system survives for many years, until at last feudal tenure gradually disappears, and its attendant prerogatives are swallowed up by all classes through a universal subjection to military service; although even yet a distinct class of professional soldiers remains at the head of military affairs and operations, and will continue to do so as long as there is a possibility of internal or external warfare. However, here too the militant class is absorbed into a general body of officials. Officials are citizens who not only occupy the usual position of members of the state, but to whom in addition is appointed the execution of the life functions of the nation, as its organs; in other words, such functions as are peculiar to the civic organisation in contradistinction to the general functions exercised and actions performed by individual citizens as independent units. Officialism includes to a special degree duty to its calling and to the public trust, and there are also special privileges granted to officials within the sphere appointed for them.

Growth of Military Classes

In a society governed by a chieftain, as well as in a monarchy, there is a popular assembly or consultative body; either an unorganised meeting of individuals, or an organised convention of estates founded on class right. A modern development, that certainly had its prototype in the patriarchal state, is the representative assembly, an assembly of individuals chosen to represent the people in place of the popular gathering. The English Government, with its representative legislative bodies, is a typical example in modern civilisation.

The Birth of Parliaments

One of the chief problems encountered not only in a society ruled by a chieftain, but also in states of later development, whether governed by a potentate or by an aristocracy, is the relation of temporal to spiritual power. Sometimes both are united in the head of the state, as in the cases of the Incas of Peru and of the Caliphate. Sometimes the spiritual head is distinct and separate from the temporal; frequently the two forces are nearly associated, a member of the imperial family being chosen for the office of high-priest, as among the Aztecs. Often, however, the two functions are completely independent of each other, as among many African races, the medicine-man occupying a position entirely independent of the chieftain. Such separation may, of course, lead to friction and civil war; it may also become an element furthering to civilisation, a source of new ideas, opening the way to alliances between nations, and setting

bounds to the tyranny of individuals, as exemplified in the relation of the Papacy to the Holy Roman Empire.

The form of state in which the functions of government are exercised by a chieftain contributes greatly to state control and enforcement of justice. The realisation of right had been from the first a social function; but its enforcement was incumbent on the unit groups of individuals (families or tribes bound together by friendship). The acquisition by the state of the power to dispense justice and to make and enforce law is one of the greatest events of the world's history. The idea of all right being incorporated in the chieftain (and social classes) played an important part in bringing about this condition of affairs; for as soon as this conception receives general acceptance, the chieftain, and with him the state, become interested in the preservation and enforcement of justice, even in its lower forms in the common rights of the subjects. On the other hand, not only the interests of chieftainship, but also those of agriculture and commerce, are furthered by the preservation of internal peace; and internal peace calls for state control of justice and enforcement of law.

State Justice a Momentous Step Forward

Moreover the religious element worked to the same end. Wickedness was held to be an injury to the deity, whose anger would be visited upon the entire land—a conception that lasted far into the Middle Ages, and according to which the fate of Sodom and Gomorrah was held to be typical of the effect of the curse of God. Already in primitive times religion led to a strange idea of justice—secret societies consecrated by the deity took upon themselves the function of enforcing right, instituting reigns of terror in their districts, maintaining order in society, and claiming authorisation from the god with whose spirit they were permeated. Later, influenced by all these causes, the social aggregate took over the control of justice. It was already considered to be the upholder of right, the servant of the deity, the maintainer of public peace, the dispenser of atoning sacrifices, etc.; and so the various elements conceived of as justice, which had previously been distributed among the single families, tribes, associations, and societies, were combined, and placed under state control.



AN EARLY EGYPTIAN REPRESENTATION OF JUSTICE Mansell

"The Judgment of the Dead" as illustrated by innumerable paintings on the walls of Egyptian temples and tombs.

Certain forms for the dispensation of justice, judging of crimes, and determining of punishments were developed. Thus arose the different forms of judicial procedure, which for a long time bore a religious character. The deity was called upon to decide as to right and wrong—divinity in the form of natural forces. Hence the judgments of God through trial by water, fire, poison, serpents, scales, or—especially in Germany during the Middle Ages—combat, or decision by the divining eye, that was closely allied to the so-called trial by hazard. A peculiar variety of ordeal is that of the bier, according to which the body of a murdered man is called into requisition, the soul of the

Terror & Tyranny of Religion



AN EARLY CONCEPTION OF THE SPIRIT OF JUSTICE: THE JUDGMENT OF SOLOMON
Reproduced from the picture by the French artist, Nicolas Poussin, who flourished in the first half of the seventeenth century.



THE MODERN IDEAL OF JUSTICE

From the fresco by Gerald Moira in the New Central Criminal Court, London. Most of the figures are studies from well-known public men of recent years.

victim assisting in the discovery of the murderer. Ordeals are undergone sometimes by one individual, sometimes by two. An advance in progress is the curse, which takes the place of the ordeal, the curse of God being called down upon an individual and his family in case of wrongdoing or of perjury. The curse may be uttered by an individual in co-operation with the members of families. Thus arise ordeals by invocation and by oath with compurgators. Originally a certain period of time was allowed to pass—a month, for example—for the fulfilment of the curse. In later times, whoever took the oath—oath of innocence—was held guiltless. Witnesses succeeded to conjurers; divining looks were replaced by circumstantial evidence; and, instead of a mystic, a rational method of obtaining testimony was adopted. The development was not attained without certain attendant abuses; and the abolition of ordeal by God was among many peoples —notably the inhabitants of Eastern Asia, the American Indians, and the Germans of the Middle Ages—succeeded by the introduction of torture. In many lands torture stood in close connection with the judgment of God; in others it originated either directly or indirectly in slavery. According to the method of obtaining evidence by torture, the accused was forced through physical pain to disclosures concerning himself and his companions, and, in case he himself were considered guilty, to a confession. However barbarous and irrational, this system was employed in Latin and Germanic nations excepting England, until the eighteenth century, in some instances even until the nineteenth.

The Ordeal and the Curse

Judgment was first pronounced in the name of God; in later times, in the name of the people or of the ruler who appeared as the representative of God. The principles of justice, the validity of which at first depends upon custom, are in later times proclaimed and fixed as commands of God. Thus systems of fixed right come into being first in the form of sacred justice, then as commands of God, and finally as law. Law is a conception of justice expressed in certain rules and principles. Originally there were no laws; the standard for justice was furnished to each individual by his own feelings; only isolated cases were recorded. As time advanced, and great men who strove to bring about an improvement in justice arose above the generality of mankind; when the ruling class became differentiated from the other classes; when it was found necessary to root out certain popular customs—then, in addition to the original collection of precedents, there arose law of a higher form: law that stood above precedent, that altered custom, and opened up new roads to justice. Great codes of law have not been compilations only; they have led justice into new paths. Originally a law was looked upon as an inviolable command of God, as unalterable and eternal; its interpretation alone was earthly and transitory. As years passed, men learned to recognise that laws themselves were transitory; and it became a principle that later enactments could alter earlier rules. The relations of later statutes to already established law, and how the laws of different nations influence one another, are difficult, much-vexed questions for the solution of which special sciences have developed—transitory and international law.

The Slow Building up of Law

Judgment and law are intimately concerned with justice, the conception of right as evolved from the double action of life and custom. To this development of justice is united an endeavour of the state or government not only to further welfare by means of the creation and administration of law, but also to take under its control civilising institutions of all sorts. This was originally a feature of justice itself; certain practices inimical to civilisation were interdicted and made punishable offences. Already in the Middle Ages systems of police played a great part among governmental institutions, especially in the smaller states. Subsequently the idea was developed that not only protection through the punishment of crime, but also superintendence of and promotion of the public weal, should be administered by law; and thus the modern state developed with its policy of national welfare. With this arose the necessity for a sharper distinction to be drawn between justice and the various actions of an administration; and thus in modern times men have come to the system —based on Montesquieu—of the separation of powers and independence of justice.

Evolution of the Modern State

Justice varies according to the development of civilisation, and according to the function that it must perform in this development; in like manner every age

creates its own material and spiritual culture. Every poet is a poet of his own time.

The notion of natural right, however unhistorical it was in itself, characterised a period of transition in so far as it enabled men to form a historical conception—a conception of what might be: for, by contrasting actual with ideal justice, we are enabled to escape the bonds of the opinions of a particular time, and to look upon such opinions and views objectively and independently. Yet it is certainly a foolish proceeding to consider an ideal, deduced principally from conceptions and opinions of the present, to be a standard by which to measure the value of historical events of all times, sitting in judgment over the great names of the past with the air of an inspector of morals. The office of the historian as judge of the dead is quite differently constituted. Every age must be judged in accordance with the relation which it bears to the totality of development; and every historical personage is to be looked upon as a bearer of the spirit of his day, as a servant of the ideas of his time. Thus it is quite as wrong to pronounce moral censure on the men of history, as it is wrong to judge an era merely according to its good or evil characteristics. A period must be estimated according to what it has either directly or indirectly accomplished for mankind.

Right Way to View History

There are common factors of civilisation shared by nations themselves, through which many contradictions disappear. The religious civilisations of Christianity, Mohammedanism, Judaism, Buddhism and Confucianism have been the determining factors of the intellectual and emotional life, even influencing the course of events, in vast regions. And thus it is also comprehensible that in the judicial life of nations there is an endeavour for a closer approach, and also the existence of equalising tendencies. In spite of countless variations in detail, there is a certain unity of law in the entire Mohammedan world; and although the hope of establishing the unity of Roman canonistic law over the whole of Christendom has not been realised none the less it was a tremendous idea: that of a universal empire founded on the Roman law of the imperators, and placed under the rule of the German emperor, thus ensuring the continuance of the law of the Roman people—an idea that swayed the intellects of the Middle Ages up to the fourteenth, even to the fifteenth century, and according to which the emperor would have been the head of all Europe, the other sovereigns merely his vassals or fief-holders. This idea, once advocated by such a great spirit as that of Dante, has, like many others, passed into oblivion; and in its place has arisen the conception of independent laws of nations. Yet the original idea has had great influence: it has led to a close union of Christian peoples; it opened a way for Roman law to become universal law, although, to be sure, English law, completely independent of that of Rome, has grown to unparalleled proportions as a universal system, entirely by reason of the marvellous success of the English people as colonists. Likewise international commerce will of itself lead to a unification of mercantile, admiralty, copyright, and patent law.

Conception of a United World

Then the idea of an international league must develop, arising from the idea of the unity of Christian nations. We have advanced a great distance beyond the time when every foreigner was considered an enemy, and when all foreign phenomena were looked upon as strange or with antipathy. Rules for international commerce are developed; state alliances are entered into for the furtherance of common interests and for the preservation of peace. Many tasks which in former times would have been executed by the empire are now undertaken by international associations; and the time for the establishment of international courts of arbitration for the adjustment of differences between states is already approaching.

It also seems probable that states will unite to form political organisations, wholly or partially renouncing their separate positions. Thus nations will be replaced by a federal state, and a multitude of unifying ideas which would otherwise be accomplished with difficulty will come to easy realisation. Federal states were already in existence during the times of patriarchal communities: an especially striking example is that of the admirably constituted federation of the Iroquois nations.

Common Interests of Mankind

The vision of no man may pierce through to the ultimate end of the processes of history, and to advance hypotheses is a vain endeavour—quite as vain as it would be to expect Plato to have foretold the life of modern civilisation or the imperial idea of mediæval times, or Dante to have foreseen modern industrialism or the character of industrial peoples.

Universal Transmission of Culture

To-day we are more certain than ever that no process of development, however simple it may have been, has ever taken place according to a fixed model; all developments have had their own individualities according to place and to time. Thus we must forego discussion of the future.

However, there is another point of view. Development of nations as well as of individuals leads either to progress or to decay. No people may hope to live eternally; and how many acquisitions already gained will be lost in the future it is impossible to say. If a nation declines, it either becomes extinct or is annihilated by another state; it becomes identified with the newer nation, and disappears with its own character; thus its civilisation may also disappear. This is a serious possibility. It is the Medusa head of the world's history which we must face—and without stiffening to stone.

There is one truth, however, the knowledge of which fills us with hope for the future: it is the fact that the results of development and civilisation are often transfused from one people to another, so that a given development need not start again from the very beginning. This is owing to the capacity which races have for absorbing or borrowing civilisations. Absorption of culture is by no means universal; it does not prevent the occasional disappearance of civilisation, for every civilisation has before it at least the possibility of death. Nevertheless the transmission and assimilation of culture is constantly taking place.

Influence of Peoples on One Another

There are various ways in which it may be brought about. A conquering nation may bring its own civilisation with it to the conquered; culture is often forced upon the latter by coercive measures. The conquerors may acquire culture from the vanquished; or assimilation of culture may come about without the subjection of a people, through the unconscious adoption of external customs and internal modes of thought. Finally, culture may be borrowed consciously from one nation by another, the one state becoming convinced of the outward advantages and inner significance of the foreign civilisation.

In this way the problem of development becomes very complicated; many institutions of vanished races thus continue to live on. Certainly the race that acquires a foreign civilisation must, among other things, be so constituted in its motives and aspirations as to lose the very nerves of its being, its very stability, in order that, intoxicated with the joy of a new life, all traces of its past existence may be allowed to break up and disappear. On the other hand, many a promising germ of culture possessed by a vigorous people may come to grief, owing to the influence of acquisitions from without. But, in return, a race that knows how to assimilate foreign culture may obtain a civilisation of such efficiency as it would never before have been capable of attaining, by reason of the fact that its power is established on a recently acquired basis, and because it has been spared a multitude of faltering experiments.

Progress Goes on For Ever

Civilisation may be mutually obtained from reciprocal action, nations both giving and taking. Such a relation naturally arises when states enter into intercourse with one another, when they have become acquainted with one another's various institutions and are able to recognise the great merits of foreign organisations and the defects of their own. Especially the world's commerce, in which every nation wishes to remain a competitor, compels towards mutual acceptance of custom and law; no nation desires to be left behind; and each discovers that it will fall to the rear unless it borrow certain things from the others. Such reciprocal action will be the more effective the more like nations are to one another, the better they understand each other, and the more often they succeed not only in adopting the outward forms, but in absorbing the principles of foreign institutions into their own beings.

Thus we may hope that even if the nations of to day decay and disappear, the labour of the world's progress will not be lost; it will constantly reappear in new communities which may rejoice in that for which we have striven, and which we have acquired by the exertion of our own powers.

JOSEPH KOHLER

THE SEVEN WONDERS OF ANCIENT CIVILISATION

From the French of Victor Hugo

By HAROLD BEGBIE

The Temple of Diana at Ephesus speaks:

The sun standeth in the high places of the mountains,
Full of brightness and mirth is the dawn.
But my loveliness is not shamed by him,
Neither is it dimmed;
For, behold and consider well, the sun is not more than thought. [shall be:
That which yesterday I was, to-morrow I
I live: I wear upon my brow the moving ages and the spirit of man,
And genius, and art:
These things are more wonderful than the sun.

Senseless is the stone in the earth, [night;
And the granite is not more than the formless
The alabaster knoweth not the dayspring,
Porphyry is blind,
And marble is without understanding;
But let Ctesiphon pass,
Or Dædalus, or Chresiphon,
And fix his eyes, full of the divine flash,
Upon the ground where the rocks slumber,
And lo, they awake, they tremble, they are stricken with understanding; [eyelid,
The granite, lifting some vague and troubled
Struggleth to behold his master:
The rock feeleth within himself the breathing of the unhewn statue, [darkness,
The marble stirs in the midnight of his
Because that he is aware of the soul of a man.
The buried alabaster desireth to rise up from the grave,
Earth shudders, it trembleth violently,
It feels upon it the will of a man;
And behold, beneath the gaze of him who passeth with creation in his eyes,
From the deeps of the sacred earth
The sublime palace comes forth and mounts upward.

When she has made an end, the Gardens of Babylon sing their laud of Semiramis:

Glory to Semiramis, [bridges
Who reared us up on the arches of the great
Whose span outraceth time.
This great queen was wont to delight herself beneath our floating branches;
In the midst of the ruin of two empires
She laughed in our groves,
She was happy in our green places;
She conquered the kings of far countries,
And when the man had humbled himself
Lo, she would go upon her way, [before her,
She would come hither,
She would sigh gleefully under our branches,
Very pleasantly would she lie down on the skins of panthers.

And after the Gardens have sung, there is heard the voice of the Mausoleum of Halicarnassus:

I am the monument of a heart that knew itself infinite;
Death is not death beneath my dome of blue,
Beneath my dome, death is victory,
Death is life. [precious stone
Here hath death so much of gold and of
That he boasteth himself thereof;
Behold, I am the burial which is a pageant,
And the sepulchre which is a palace.

Then, like a great thunder, the voice of Jupiter:

I am the Olympian,
The lord of the muses;
All that which hath life, or breath, or love, or thought, or growth.
Groweth, thinketh, liveth, loveth, and breatheth in me. [feet
The incense of supplication which rises to my
Trembles with terror and affright;
The slope of my brow doth touch the axis of the world;
The tempest speaketh with me before he troubles the waters;
I endure without age;
I exist without pang;
Unto me one thing only is impossible—
To die.

After Jupiter, from the island of Pharos sounds the voice of the great Lighthouse:

In the midst of the mighty waters
I tarry for the ceasing of the centuries.
Sostratus the Cnidian built me,
He built me that there might be thrown
Across the rolling waters,
And through the darkness where lurketh destruction,
A rebuke to the lovely vanity of the stars.

After the Lighthouse, the Colossus at Rhodes:

I am the true Lighthouse.
Rhodes lies at my threshold.
Before the steadfast gaze of my unsleeping eyes
Winter maketh white the mountains. [mists;
I behold the deep waters in their cavernous
I am the sentinel whom none cometh to relieve;
I look forth upon the coming of the night,
And upon the coming of the dawn
I behold the lifting of the mists,
I behold the terror of the sea,
With the immense dreaming of Colossus.

And last speaks the Pyramid of Cheops:

The desert, spread like a table, lieth beneath my foundations.
Lo, from some mysterious gateway of the night
I lift unto heaven my stair of terror,
And out of the darkness itself seemeth it that I am builded.
The sphinxes dropped their broods in the caverns; [sighing;
The centuries went by; the winds passed
And Cheops said again: I am eternal!

Then, after a profound silence, the creeping worm of the sepulchre lifteth up his voice:

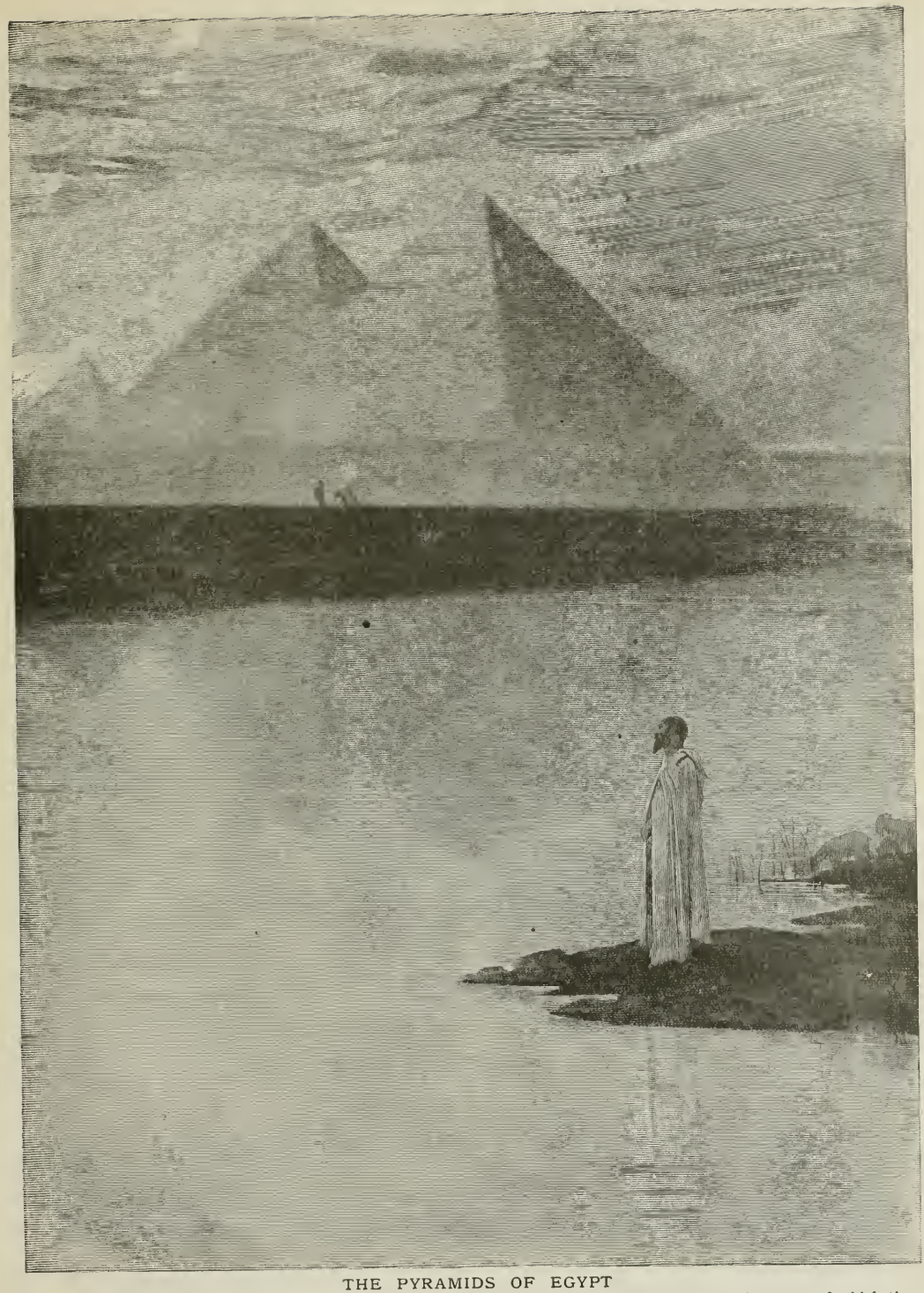
I say unto you Buildings that ye rise, and arise still more!
Set ye up a stone above a stone,
Above cities lift yourselves up, O temples!
Lift up yourselves, like Babel!
Column above column;
Higher and yet higher;
Let palaces arise upon the hollow places
And let nothingness be fastened upon the foundations of night!

Ye are like smoke,
Therefore exalt yourselves with the clouds!
Set not an end to your boasting!
Mount up, mount up, for ever! [wait.
Lo, in the dust beneath your feet I crawl and
Small am I, O mighty ones,
And yet I say unto you,
From the going down of the sun to his rising up,
From all the corners of the earth,
Everything which hath substance and which
The thing which is sorrowful, [hath being,
And the thing which is glad,
Descend unto me. [for ever,
And I only have strength, and I only endure
For behold, I am death.



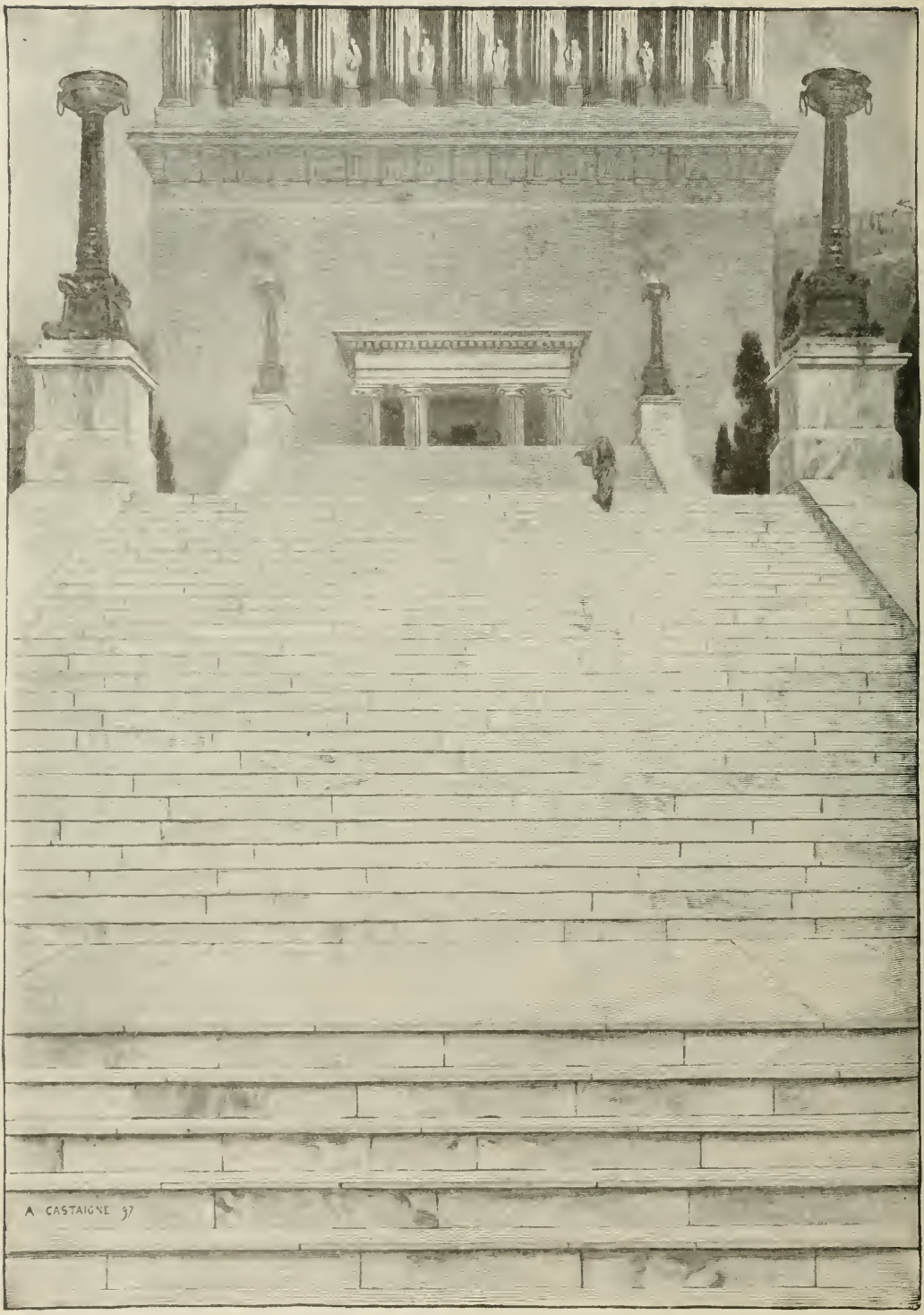
THE HANGING GARDENS OF BABYLON

The Hanging Gardens have been attributed to Semiramis, although Nebuchadnezzar is also said to have built them to please one of his wives, who, coming from a hilly country to Babylon in the midst of a vast and barren plain, sighed for some reminder of the leafy beauty of her old home. The gardens, built in the form of a square extending some 700 feet on each side, rose to a great height in terrace upon terrace supported by massive pillars. A remarkable hydraulic system kept their multitudinous plants and trees in almost perpetual verdure.



THE PYRAMIDS OF EGYPT

For six thousand years the Pyramids have thrown their shadow across the sands of Egypt. The stone of which they are built would make a great wall from Cairo to New York; the white marble which covered them would have built more king's palaces than Egypt has had need of. The building of the Great Pyramid employed 100,000 slaves for 30 years, and the geometrical perfection of it is a marvel to this day. Khufu, or Cheops, who built the Great Pyramid—probably as his tomb—reigned about 4700 B.C., so that the pyramid is more than three times as old as the Roman Empire.



THE MAUSOLEUM AT HALICARNASSUS

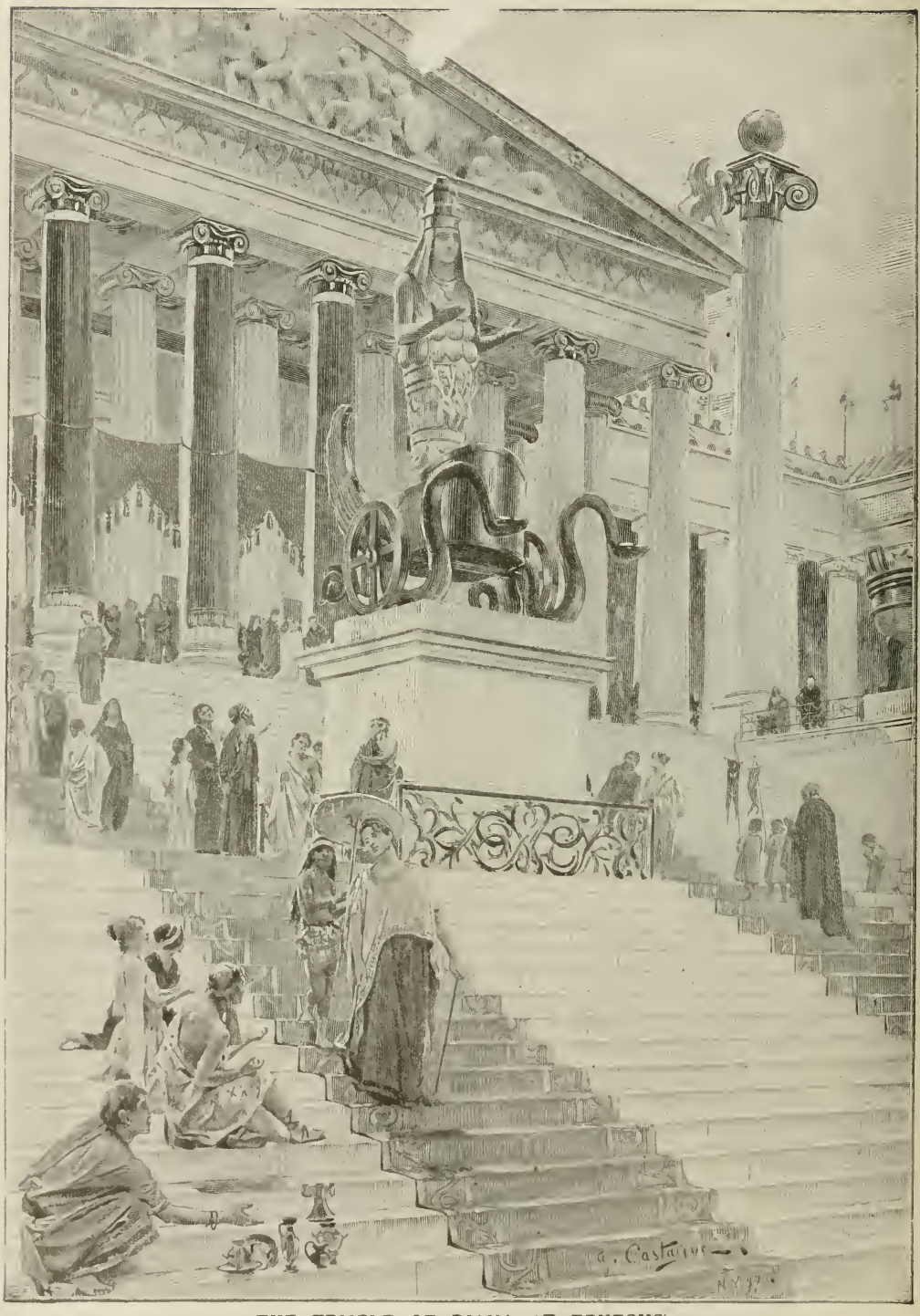
This famous monument of antiquity was erected in the year 354 B.C. to the memory of King Mausolus of Caria by his widow Artemisia, at Halicarnassus, the beautiful Greek city-colony on the shores of the Ægean Sea. Some idea of its size will be gathered from the fact that it was surrounded by an esplanade which measured over three hundred feet on each side, while its total height was nearly a hundred and fifty feet. The statue existed almost intact until the fourth century of our own era, and was finally destroyed in the Middle Ages by the Turks.



THE COLOSSUS O[F RHODES]

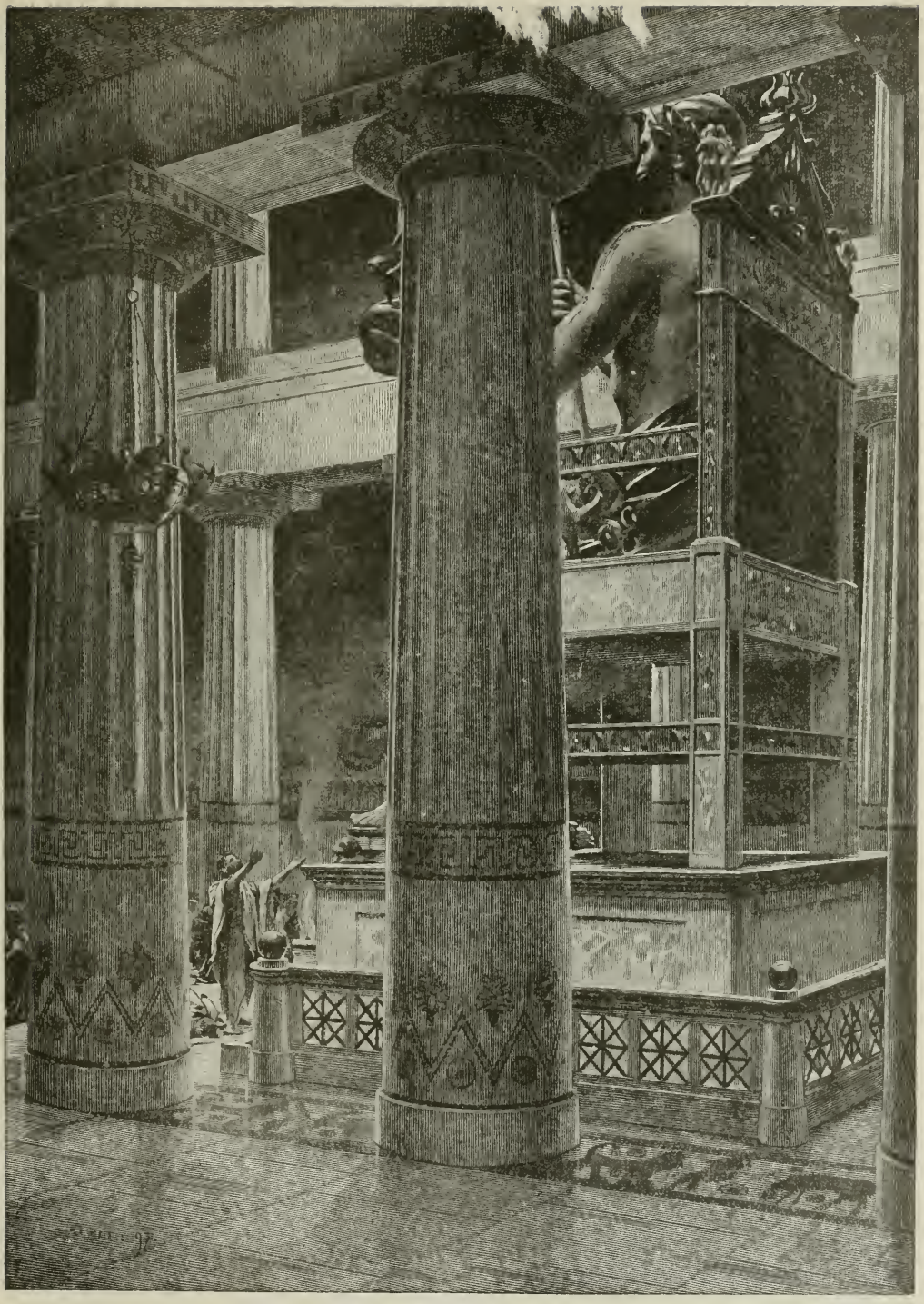
This short-lived achievement of ancient art[ist] d[rom ab]out was th[e] large[st] of a hundred statues to the sun-god raised in the island of Rhode[s] [c]ould [h]ave it stood. Dedicated to Apollo, who wa[s] [Demet]rius the place where made from the engines of war which the [besieger] Demetrius, it was An earthquake in 224 B.C. destroyed [the extraord]inary statue.

[Colossus of] Rhodes.



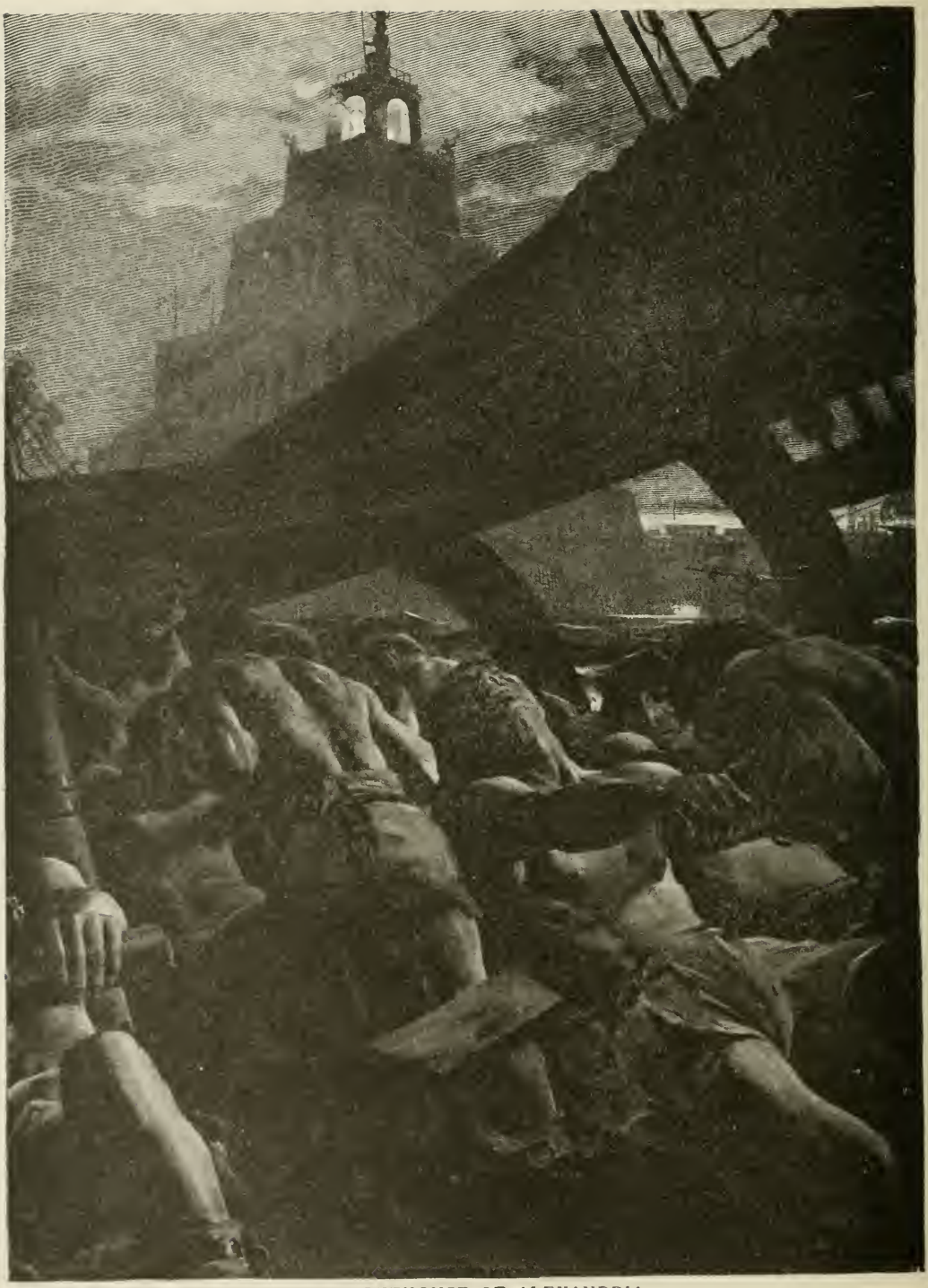
THE TEMPLE OF DIANA AT EPHESUS

"Great is Diana of the Ephesians." Her temple was burned down in 356 B C , and subsequent to that year the great temple famed in history was erected by the Ionians. It is said to have taken 220 years to construct and measured about 400 feet in length and 200 feet in width, while it contained no fewer than 127 Ionic columns nearly 65 feet high. The temple was despoiled by Nero and destroyed by the Goths in 262 A.D., but some of its ruins still remain.



THE STATUE OF JUPITER ON OLYMPUS

The world-famous statue of Jupiter was the work of the great sculptor Phidias. It measured 43 feet in height above the base. The body of the god was carved from ivory, and the drapery was of solid gold. No other statue of such magnitude, of such artistic perfection, or of such precious material, has been known to history. Among the ruins of the temple are still to be seen the remains of the black marble mosaic on which the statue stood.



THE LIGHTHOUSE OF ALEXANDRIA

On the island of Pharos, close to Alexandria, stood the famous lighthouse erected by Ptolemy Philadelphus about 280 B.C. Constructed of white marble, in a series of vast stages of vaulted masonry, it reached the height of 520 feet, and in its summit burned, night and day, an immense beacon fire of wood, which could be seen 30 miles at sea. The lighthouse was gradually destroyed by earthquakes and the action of the sea, but existed in some condition to the end of the 13th century.

BIRTH OF CIVILISATION AND THE GROWTH OF RACES



THE RISE OF CIVILISATION IN EGYPT

BY PROFESSOR FLINDERS PETRIE

IN looking back to the beginning of civilisation in any country, we have to deal with the physical changes which the land has undergone, and to consider the conditions which promoted or hindered the advance of its inhabitants. The nature of a country largely rules the nature of its people, both bodily and mentally; and it may even be true that, if sufficient time be given, the same character and structure will always be produced by equal conditions.

From historical records, and the cemeteries that have been examined, it appears that the beginning of a continuous civilisation in Egypt must be set as far back as about 10,000 years ago, or 8000 B.C. The question then is, how far the condition of the country at that age was similar to that now seen? The present state is quite new, geographically speaking, as the deposit of mud by the Nile, providing a suitable soil, is only a matter of a few thousand years. The accumulation of deposit is about 5 in. in a century (4·7 at Naukratis, 5·1 at Abusir, 5·5 at Cairo); and the depth of it is not less than 26 ft., and varies in different places down to 62 ft. The lower depths are, however, often mixed with sand beds, and do not show the continuous mud deposit; hence the average depth of 39 ft. is too large, and if we accept 35 ft., it will certainly be a full estimate. At the average rate of deposit, this would be formed in 6,000 years. But, on the other hand, the deposit may have been slower at the beginning, and hence the age would be earlier. Also, the full depth may be greater, owing to some borings hitting on ground which was originally above the river. Hence the extreme limits of age of Nile deposit in different positions are perhaps 7,000 to 15,000 years, and probably about 10,000 years may be a likely age for the beginning of continuous Nile mud stratification. Hence it is clear that the start of the civilisation was about contemporary with the first cultivable ground.

Civilisation 10,000 Years ago

How we can Fix the Date

Earlier than the Nile deposits there must have been some rainfall, enough to keep up the volume of the river, and to prevent its slackening, so as to deposit its burden. We must picture, then, the country as having enough rainfall for a scanty vegetation in the valleys, while the Nile flowed down a mighty stream, filling the whole bed as it now does in flood, and bearing its mud out to the sea, except in some backwaters which were shoaling up. Such a land would support a small population of hunters, who followed the desert game and snared hippopotami in the marshes. The Nile had been in course of recession for a long period before it began to rise again by filling its bed. The gravels high above the present Nile contain flints flaked by human work; much as in Sinai such flakes are found, deep in the filling of the valleys which belong to a pluvial

Stone Age in Egypt

period. Yet after the Nile had retreated down to the present level, man appears to have been still in the Palæolithic stage, as freshly flaked, unrolled flints have been found at the lowest surface level of the desert. As the country, while drying up, and before mud deposits were laid down, would have only been suited for occupation by hunters, it seems probable that Palæolithic Man had continued in Egypt until the beginning of the Nile deposits—that is to say, till the beginning of the continuous civilisation as discovered in the cemeteries.

The First Dwellers in the Land

Bushman Type. On turning to the remains of the earliest burials, we find that in many cases female figures of the Bushman—or more precisely Koranna—type, were placed in the graves; while at the same time long, slender figures of the European type are also found. The inference is that the Palæolithic race of the Koranna type was known to the earliest civilised race in Egypt, and that they were being expelled and exterminated, as only female figures are found—representing captive slave women—and even these soon disappear. Thus it would seem that Egypt, as an almost desert region, before the formation of the cultivable mud flats, was the last home on the Mediterranean of the hunters who continued in the Palæolithic stage. The physical type of the figures which we can attribute to this earliest population has the Bushman characteristics of fatness of the thighs and hips, with a deep lumbar curve; and a line of whisker covers the jaws of the female figures, akin to the fur on the bodies of women on the Brassempouy and Laugerie-Basse ivory carvings. This indicates that they belonged to a cold climate, and had not been developed in Egypt. As, however, man had certainly dwelt in the Nile valley for long ages, this northern indication points to a comparatively recent invasion from a colder to a warmer climate, such as has been the rule throughout historical times.



THE FIRST INHABITANTS OF EGYPT

As female figures of the Bushman type are found in the very earliest Egyptian graves, it is thought that this race was native to the country and was gradually expelled by the first civilised people. The photograph illustrates one of the figures taken from a grave.

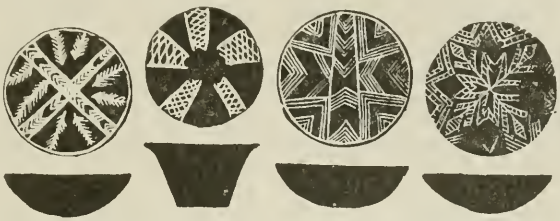
Prehistoric Period. The beginning of the continuous civilisation of the country must be placed at about 8000 B.C. The written history extends back to the first dynasty, and places that at 5500 B.C., and this is checked at the sixth, twelfth, and eighteenth dynasties by records of the rising of Sirius, and of the seasons in the shifting year, which agree to this dating in general. For the length of the prehistoric age before these written records there is no exact dating. But, as in a given district of Egypt, where all the desert has been searched, the prehistoric graves are about as numerous as those made during the six thousand years of the historic time, at least 2,000 or 3,000 years must be allowed. The amount of change in every kind of production during this age is considerable; and as we can trace two cycles of civilisation, which usually occupy about 1,500 years each in the later times, it is likely that 2,500 years is too little rather than too long a period. As no definite scale of years can be used, the dating of the graves of this age is treated as a matter of sequence. From a careful statistical classing of the pottery, it is practicable to put about a thousand of the fullest graves into their original order; this series is then divided into 50 equal parts, and these are numbered from 30 to 80. Thus, sequence date 30 is the earliest type of graves yet found, and S.D. 80 is of the age of Mena, the founder of the first dynasty. The sequence dates are given below for each stage of the prehistoric times.

Time Without Dates

Earliest Burials. The earliest graves found are shallow circular hollows on the desert, about 30 in. across, and a foot deep. The body lies closely doubled up, wrapped in goat-skins. There are very few objects placed with these burials; a single cup of pottery, red, with black top; rarely, a slate palette for grinding face-paint; and, in one

grave, a copper pin to fasten the goat-skin. Pottery was in a simple stage, and weaving was quite unknown. These graves are classed as sequence date 30.

First Civilisation. The next period is that of the white patterns on red (S.D. 31 to 34). This use of lines of raised white slip is the same as on the present Kabyle pottery, and the patterns are so closely alike on the ancient and modern that this forms a strong evidence for a Western connection of the people. In this period the main lines of the civilisation become clearly marked. The fine flint chipping with delicate serrated edges; the polished red pottery, of circular and of fancy forms; the tall round-bottomed stone vases; the slate palettes for face-paint, of animal forms and of rhombic shape; the use of sandals; the ivory combs with animal figures; the disc-shaped mace-head—all of these were in use with the white cross-lined pottery, and stamp the general type of the beginning of the civilisation. We have before us a settled population, with strong artistic taste in handicraft, but not in copying Nature; with patience for very long and skilful work, and probably organised, therefore, under chiefs who commissioned such labour; yet with sufficient general demand for fine things to have raised hand pottery to its highest level; with strong beliefs about a future life, as shown by the uniform detail of the position of the body and the nature of the offerings in the grave; with the arts of spinning and weaving; fairly clothed, as shown by the use of sandals; fighters, with finely-made and treasured weapons; with the use of personal marks for property—altogether much in the stage which we now see in the highest races of the Pacific or Central Africa.



POTTERY OF FIRST EGYPTIAN CIVILISATION

The pottery of the first period of Egyptian civilisation is characterised by raised white lines on a red body, and from the fact that it closely resembles the pottery of the Kabyle people, who live in North Africa to-day, it is thought the first Egyptian civilisation may have come from the west. These examples are before 7000 B.C.

Civilisation Emerging from the Mists

Eastern Invasion. This civilisation had lasted for a few centuries when we see a change come over it. On searching the types of pottery we see many new forms arising from S.D. 38 to 43, while many older types disappear between S.D. 40 and 44. These changes serve to stamp the point of the change, but it is in other respects that the differences are most visible. The black-topped pottery, red polished, and fancy forms of pottery cease to develop after 43, whereas the decorated pottery, with brown line patterns on buff ware, is scarcely known till 40, and the late class of pottery begins at 43. In the stone vases the forms of tall tubular shape, with handles, cease at 40, and the barrel forms begin at 39, and are dominant by 42. In flint work the various new types begin from 39 to 45; the disc mace dies out about 40, and the pear-shaped mace begins at 42. In the slate palettes old types vanish and new ones arise from 37 to 42. The same is seen in ivories. Foreign intercourse was increased, as silver (from Asia Minor?), lazuli (from Persia?), serpentine and hæmatite (from Sinai?) all come into use from 38 to 40. In copying Nature, the steatopygous figures of the Bushman type are only found before 38, and human figure amulets are known from down to 44. Animal figure amulets begin in 45. Multiple burials in graves are common down to 40, and continue till 43; only single burials are known later.

The racial changes that are thus indicated by these widespread differences can only be traced by the different products. The white line pottery characteristic of the earliest people is closely like that of the Kabyles, and the similarity of the skull measurements show that there is no bar to accepting the connection with the North African race. But the details of the new people, using animal amulets, a face veil, wavy-handled pottery like that of early Palestine, and the Asiatic silver and lazuli, all point to their coming in from the East. This change may be further linked with the religious traditions. This later mythology taught that Osiris had found the Egyptians in a brutal existence, and he had taught them agriculture, laws, and worship; this appears to be the tradition

Invasion from the East

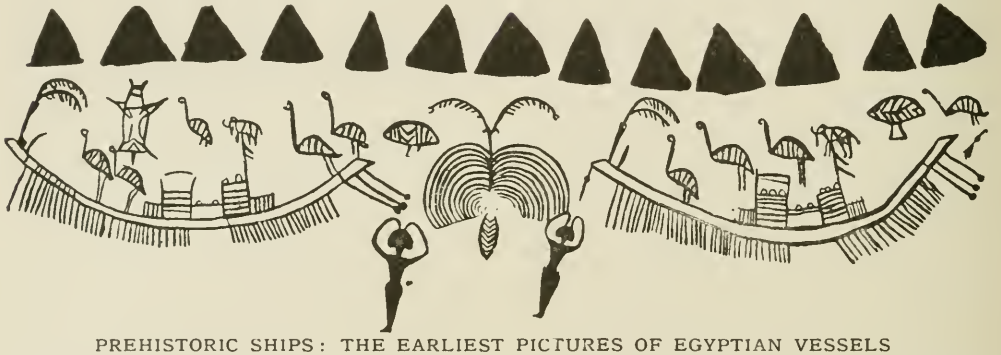
of the bringing in of cultivation by the earliest civilisation at S.D. 30. His worshippers were allied with those of Isis, who were a kindred tribe. Hence Osiris is said to have married his sister Isis. The myth further shows that this civilisation was attacked treacherously by the tribe who worshipped Set, in confederacy with an Ethiopian queen, and they succeeded in suppressing the worship of Osiris and removing his remains to Byblos in Syria. This seems to agree to the influx of Asiatic influence, about S.D. 40, which we have noticed above. The correction of the calendar from 360 to 365 days, is attributed to the beginning of the civilisation (at S.D. 30) by the myth that Osiris and his cycle of gods were born on the extra five days.

What Mythology Says

SECOND CIVILISATION. The second prehistoric civilisation, of which we have traced the Asiatic source, is specially marked by the use of a hard buff pottery, on which designs are often painted in brown outline. The art of these has no connection with that of the early white line designs; the habit of covering figures with cross lines, and the imitation of basket-work, have entirely disappeared; and, on the contrary, the plant, ostrich, and ship designs are quite new.

What, then, were the connections of these people? One indication is gleaned from carvings at the close of the prehistoric age. Two tributaries of the new king of Egypt are shown bearing stone vases of the style of those of the second prehistoric civilisation, S.D. 45-75. They have large pointed noses, and wear pigtails, and another tributary of the same type wears a long robe. Hence we may see that they came from a cold region where stone vases were wrought; and that by the form of the vase they were probably the same people as the later prehistoric stock. Yet, on the other hand, we occasionally find pottery vases of that people in the earlier prehistoric age, so that they must have been in touch with Egypt throughout. The more likely source for them was the mountainous region, where snow sometimes lies, between Egypt and the Red Sea; and certainly this was the source of the rare igneous rocks used for the prehistoric vases.

The general conclusion would be, then, that a people occupying the mountainous region east of Egypt had an independent civilisation, and were in touch with the early prehistoric people of the Nile valley. Then about S.D. 38 they began to push down into Egypt, and fully entered it by S.D. 44, bringing with them various different points of their own civilisation, and expelling the Osiris worship in favour of Set, who was their god. They probably brought in the Semitic elements to the Egyptian language, along with the other Asiatic connections.



PREHISTORIC SHIPS: THE EARLIEST PICTURES OF EGYPTIAN VESSELS

The pottery of the second period of Egyptian civilisation is rich in representations of prehistoric ships. The vessels are shown with many oars, and the cabins are placed amidship with a gangway between. It is gathered from these crude drawings that in prehistoric times there was a considerable shipping trade along the coast of Egypt.

SHIPPING. Under this new order of things we see much more foreign and maritime connection. The introduction of silver from Asia, of lazuli from Persia, of hæmatite from Sinai, of serpentine from the Arabian desert—all show this. On the vases we see the starfish painted, and one of the most usual decorations was the figure of a great galley or ship. These ships are shown with oars on the pottery vases, and without oars or sails on the tomb paintings. From the proportion of the figures they appear to have been as much as 50 ft. long, and this is confirmed

Fleet of Prehistoric Ships

by the oars, which number up to sixty. Neither indication is exact; but the tendency would be to exaggerate the size of the figures, and certainly not to diminish them, and so aggrandise the ship. The shipbuilding in the early history may prepare us for the earlier rise of such work, when we read of Senefru building sixty ships of a hundred feet long in one year.

These prehistoric ships were all of one pattern. Amidships were the large cabins, and there was no poop or forecastle structure, probably because of the want of support fore and aft, the flotation being mainly in the middle. The two cabins were separated by a broad gangway across the boat, and joined above the gangway by a bridge from roof to roof. Lesser cabins projected fore and aft from the main cabins. On the roofs were rails at the corners, so as to secure top cargo without getting in the way of loading it up. In a large ship there was an upper cabin on the hinder main one, a light shelter shaded with branches. From the back of the hinder cabin stood up a tall pole bearing a solid object as a standard, which we shall notice below. At the stern was the steersman seated by an upright post, to which was probably lashed the steering oar, as in the historical boats. In the bows was a low platform, with a rail round it, for the look-out, shaded with branches. The cabins were narrower than the beam, and left free space for rowers on each side.

What the Ships Were Like

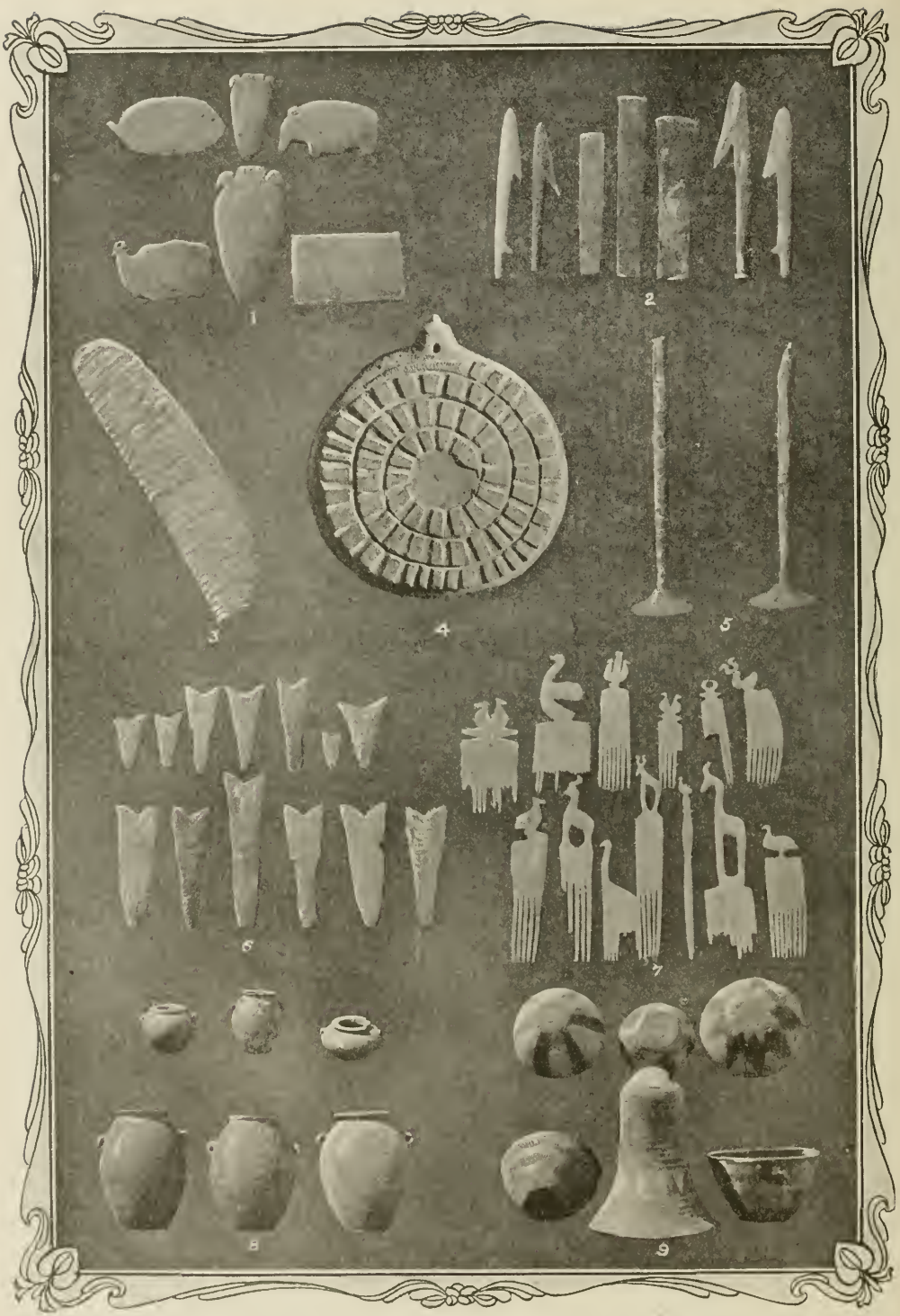
Foreign Imports. Vessels of this large size certainly imply a corresponding importance of commerce. We have noted already the foreign imports into Egypt; and others imply more distinctly a sea intercourse. From S.D. 33 down to S.D. 68 there is found black pottery with incised basket-work patterns [page 238] filled in with white. It is always rare, only occurring in less than 1 per cent. of the graves, and in only one case was there more than a solitary example. It is entirely disconnected from the Egyptian types, but it is closely akin to pottery found on the north of the Mediterranean, in Spain (Ciempozuelos), in Bosnia, and in the earliest town of Troy. At the close of the prehistoric age the black pottery of the late Neolithic city of Knossos is found in the lowest levels of the temple at Abydos. And in the royal tombs of the first dynasty there many vases and pieces have been found which are clearly of the earliest age of painted Ægean pottery. Considering that the bulk of the trade must have been for perishable goods—oil and skins from Crete and Greece, corn and beans from Egypt—it is not to be expected that a great amount of breakable pottery would pass and be preserved in burials. There are, moreover, some tallies left to us besides the northern pottery. Throughout the later prehistoric age emery was regularly in use for all the grinding and polishing of stone vases and of carnelian beads; and so common that one excelsior spirit in search of a tour de force had even cut a vase out of block emery, as being the hardest known material. This emery, so far as we know, must have come from Smyrna. Again, the gold of the first dynasty contains a large amount of silver. This points to its source from the Pactolus region, where electrum was found, rather than from Nubia, where the gold is free from silver.

Trade in Those Days

Connection of the Shipping. When we look at the evidence of the ships themselves we see that it points to their having been used at sea rather than on the Nile. It is impossible to row a ship up against the Nile stream, which runs at three miles an hour, and sailing or towing is the only way to go southward in Egypt. But in only one instance is a ship with a sail represented, while there are many dozens of figures of rowing vessels. The galley has always been the type of business ship on the Mediterranean. All through the classical wars the rowing galley was the mainstay of power. The Homeric catalogue of ships, the Phœnician coinage, the Assyrian sculptures, the Greek fleets, the Carthaginian navy and its destroyers of Rome, the pirates of Liburnia and Lycia, down to the Venetian fleet and the French galleys of a couple of centuries ago, all show the dominance of the oar.

Port Ensigns Carried

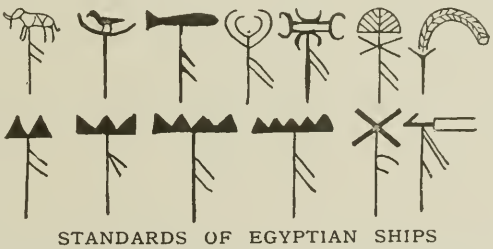
The nature of the standards upon poles carried by the ships has been variously interpreted. We can distinguish the elephant, bird on a crescent, and fish; the two or four pair of horns, the bush, and the branch; the rows of two, three, four, or five hills; the crossed arrows, and the harpoon, besides other forms which we cannot identify. The question is, what view will account for these most completely?



ARTICLES ILLUSTRATIVE OF THE EARLY CIVILISATION OF EGYPT

(1) Slate palettes on which paint for rubbing round the eyes was ground; (2) adze heads and harpoons, the harpoons at the sides being of bone, the others of copper; (3) beautifully flaked flint knife; (4) serpent amulet of stone; (5) maces of quartzose rock, very effective weapons; (6) forked lances of flint; (7) combs of ivory; (8) vases carved from hard stone; (9) black incised pottery, a foreign import into early Egypt.

Some have thought they were emblems of gods, and that the boats were sacred to divinities; but there are many which cannot be thus explained. Others have thought that they indicated tribes; but the rarity of repetitions, and the absence of any duplicates together, are against this. Marks of personal ownership have been suggested; and this is not impossible, as they might be well dedicated to special gods. But the prominence of the groups of hills as signs agrees best with their being marks of the ports from which they hailed; the divine emblems would naturally be those of the god of the port, the number of hills would be very likely to distinguish different ports, the elephant, the bush, or the fish might well be the mark of a port. And the parallel in later times of such being distinctive ensigns for ports —as in the ensign of Gades found in the Red Sea—agrees to this usage. The carrying of a port ensign in an age of independent city-states was equivalent to a national flag in later times; and it was essential for showing friends or foes.



STANDARDS OF EGYPTIAN SHIPS

There has been much speculation as to the significance of the standards carried by the most ancient of the Egyptian vessels, as recorded on pottery and elsewhere. Some examples of these standards are here given. The most reasonable supposition is that these devices indicated the port from which the vessel sailed.

We have dwelt at length on the detail of this shipping, as it is the most important subject for showing the extent and character of the early civilisation. It takes two to trade as well as to quarrel; and these large ships were not rowed about the Mediterranean unless there was a paying trade to be done on those coasts, a people civilised enough to produce goods that were wanted and to require foreign stuff in exchange, and a society stable enough to enable goods to be stocked in bulk and traded without any serious risk of fraud or force.

HUNTING. The main occupation represented in the prehistoric paintings is hunting. The bow and arrow was used. The bow was a single piece of wood, painted red and covered with zigzag white lines; the arrow was of reed, with a point several inches long of hard wood. The forked lance of flint was also a favourite weapon [p. 238]; it was inserted at the end of a wooden shaft, which was controlled by a long thong of leather ending in alabaster knobs which kept it from entirely flying from the fingers. Thus the lance could be thrown by a man in ambush to cut the legs of a gazelle, while, if it missed, it was jerked back by the elastic thong, and so saved from breaking the delicate edge of flint. These forked lances are found throughout nearly all the prehistoric time; and they continued in use in North Africa till the Roman Age, when Commodus borrowed thence their use for hunting the ostrich. This lance retained by a thong was the parallel to the favourite harpoon used in fishing. Another mode of hunting was the trap. This is represented as being formed of pointed splints or stakes, lashed together like spokes of a wheel, with the points around a central hollow. Such traps to catch the legs of animals are used now in Africa, and an example was found at the Ramesseum, dating perhaps from the twentieth dynasty. Sticks or clubs were used in hunting and in fighting.

Ingenuity of the Hunters

Mode of Ostrich Hunting

FIGHTING. The earliest representation of fighting is on a vase of the white slip on red, at the beginning of the prehistoric age. On that a man with long, wavy hair appears to be spearing another man in the side. Later, there are the fighters on the Hierakonpolis tomb, at about S.D. 63. On this hooked sticks are used, and the fighters are clad with a spotted animal's hide on the back. One man has been killed, and another is hard pressed, fallen on one knee. To save himself from blows he has taken off the hide and is holding it up, thus anticipating the use of the shield. It seems likely that the Egyptian shields of hide stretched on a frame of sticks were directly copied from this use of the hide that was otherwise worn on the body. In another group a black man is holding three red captives bound with a black cord, while two red men approach him to deliver their kindred.

The weapons mostly found are the stone maces [page 238]. These were sharp-edged discs in the earlier age, a form which is very effective in a mixed fight, as it

cannot be turned aside like a battleaxe, but must cut in whatever direction it falls. These maces were usually made of porphyry and other quartzose rocks. The mace used in the later age was of a pear shape, and this form was continued into the historic times, and perpetuated in the conventional scene of the king striking an enemy, even in the latest times. The handle holes in these maces are very small, and this shows that probably the handles were dried thongs of hide. Nothing else would be sufficiently tough and elastic. The flint dagger was probably also used, and certainly the copper dagger. A very fine example of this, dated to S.D. 55 or 60, is wrought with a quadrangular blade, giving the utmost strength and lightness, a better design than that of any daggers of the historic times.

Fighting with Maces



TOOLS. Tools of metal begin with small, square chisels of copper at S.D. 38. The intermediate examples have not been found till we reach a fine large chisel of copper at the close of the prehistoric. Adzes of copper [p. 238] begin at S.D. 56, or earlier, and increase in size down to historic times; they continued to be the favourite tool of the Egyptians for both wood and stone working until Greek times. Borers are usually tapered, to work in soft material. Needles of copper appear as early as S.D. 48, and the fastening pins of copper begin with the very earliest graves of S.D. 30.



THE FIRST PICTURES OF FIGHTING

The earliest representation of fighting, at the beginning of the prehistoric age, shows a man with long, wavy hair, spearing another man in the side. Later, are fighters on the Hierakonpolis tomb, using hooked sticks and clad in piebald hides of animals.

Flint working was the greatest artistic industry of the prehistoric age. The surfaces were not merely reduced by haphazard flaking, but the flints were ground into form, and then reflaked in a marvellously regular manner with uniform parallel grooves [page 238]. The finishing of the edges by deep serrations of the fineness of forty to the inch, and the chipping out of delicate armlets of flint, show also the same astonishing skill and perfection of hand work. The Scandinavian flint chipping used to be regarded as the most perfect, but the Egyptian work entirely surpasses it in regularity and boldness.

STONE VASES. Hard stones were largely employed for making vases [page 238]. In the earlier age tall, cylindrical forms were used, and in the later age barrel forms. The earlier material was usually basalt, but syenite, porphyry, alabaster and limestone were also used. The later materials included slate, grey limestone, breccia, serpentine, and diorite. The hollowing out of these vases was by grinding, but the outside was entirely formed by chipping and polishing without rotary motion. The perfect regularity of the forms, and the fine taste shown in the curves of the outlines, as well as the hardness of the material, place the vase working higher than any work of the historic times.

POTTERY. Pottery was greatly developed, although the wheel was not used, and all the forms were entirely modelled by hand and eye without mechanical guidance. The outlines are true and fine, the circularity is astonishingly regular, although all the trimming and polish runs vertically; and it was as easy in such a mode of building to make oval, doubled, or square forms, all of which are found. The later pottery is specially decorated, with brown-red lines on a hard buff body. The forms are clearly copied from those of the stone vases; and the patterns are derived from the fossils and veins in the stone, or from the cordage net in which the vases were slung for carrying. Next appear aloes and other bushes, and figures of ships, which we have already noticed. Rows of ostriches and of hills are also favourite designs.

1,000 Forms of Pottery

Other pottery of this ware, but not decorated, has a curious type of projecting ledge, wavy up and down, for

handles. Beginning at S.D. 40 as a globular vessel, the type narrows to an upright jar; by S.D. 60 the handles dwindle, becoming united around it as a wavy band of pattern; by S.D. 70 the jar at last becomes a cylinder; by S.D. 75 the band becomes a mere line; and then after S.D. 80—in the first dynasty—the jar dwindles to a rough tube like a thumb-stall. The contents of such jars similarly deteriorate. At first, perfumed ointment was put in them, then it was covered with a layer of mud to retain the scent; the mud increased until it was merely scented mud, then only plain mud was used, and lastly they were left empty. Beside many other forms of this hard ware there was also a long series of types in a rough brown pottery, which passed on into the ordinary pottery of the first dynasty. As there are over a thousand different forms of this prehistoric pottery known, and their study has been the key to the whole arrangement of that age, this subject is a very wide one, which we have barely noticed here.



PREHISTORIC POTTERY OF EGYPT

The later pottery of the prehistoric period is characterised by brown-red lines on a hard buff body. The forms and decorations have been copied from earlier stone vases, and from the nets in which they were carried.

SLATE PALETTES. A constant personal possession was the slab of slate upon which the green malachite or red ochre was ground for colouring around the eyes. Usually a brown pebble crusher accompanies it; and the dead often have a little leather bag of malachite in the hands. These slate palettes begin with a plain rhomb form, probably derived from the natural cleavages of the slate rock. Well-formed animal figures were also carved as slate silhouettes; the deer, hippopotamus, and turtle are the oldest, and the fish also comes into the earlier age. The double bird type begins with the second age, and all the types continuously degrade by repeated copying until their original form is quite indistinguishable at the close of the prehistoric age [page 238].

A Constant Personal Possession

PERSONAL OBJECTS. Ivory carving is common, mainly for long combs to fasten up the hair. These usually have an animal on the top of them; but they only belong to the earlier age, suggesting that the hair was worn shorter in the second period. Decorated tusks of ivory are also early; they were fastened on to leather work, probably to close the openings of water skins. Ivory spoons belong only to the second period, as likewise do the forehead pendants of shell.

Amulets of animal forms were frequent in the second period. They are generally cut in stone, carnelian, serpentine, porphyry, and coloured limestones. The forms are the bull's head (which continued in use into historic times), the hawk, serpent [p. 238], frog, fly, scorpion, claw, vase, and spear head. The meanings attached to them are quite unknown.

Games are found, as shown by the ivory draughtsmen, the small balls or marbles, the stone gateway and ninepins [page 242], the figures of lions and hares, and the throwing slips for obtaining a count as with dice.

CLOTHING. The clothing of men was, at most, the kilt of linen, or an animal's hide put over the body. Often only a belt was worn, with three narrow strips hanging down in front. A usual covering was a belt with a sheath attached to it to hold up the genitals. With the pleated kilt was also worn a belt having apparently a jackal tail hung behind. On some figures there is merely a double rope round the waist. These various forms may belong to different peoples and periods; but there are hardly enough examples to prove any distinctions, as the varying circumstance of the figures, captive and conquered, resting and working, rich and poor, in heat and in cold, may easily have led to the different dress that we see. Women are represented with a white linen petticoat from the waist to the feet. Leather was a favourite material for clothing, as well as for bags. It was painted with patterns, and decorated with beads, reminding us of the North American work.

What the People Wore

DECAY OF CIVILISATION. All of this civilisation gradually decayed; the

pottery is seen becoming coarser, good work dying out in rougher copying, new types seldom appearing, cheaper and poorer objects being more usual. There is ground, however, for supposing that at some time in this age there was a central rule at Heliopolis. There are many traditions of a principality there, which must certainly have been before the dynasties. The sacred emblem preserved in the temple was the shepherd's crook, *haq*, which served for the title of "prince" in all later times; the other sacred emblem was the whip, and these two were the royal emblems of Osiris. The title of the nome was "the princes' territory," and this capital retained in later ages the reputation of being the centre of learning and theology. And on the fragment of the early annals known as the "Palermo Stone" there is shown

The Oldest Capital of Egypt



THE EARLIEST GAME OF NINEPINS

These ninepins, the gate to play through, and the porphyry balls were all found in a child's grave.

a long row of kings of Lower Egypt before the dynasties; these cannot have ruled at Memphis, as that was a new foundation by Menes.

History in Mythology. Of the break-up of this civilisation we may trace some relation in the mythology. After Isis had recovered the body of Osiris, and the worship of the Osiris and Isis tribes had revived again from the Semitic invasion of Set worshippers, Set again attacked the Osiris worship, and scattered the body of Osiris into fourteen parts in different places. This refers probably to the distribution of parts of the body to different districts, when it was cut up in the funeral ceremonies, according to prehistoric usage. These parts of Osiris were kept at sixteen nomes in Egypt in historic times, six in the Nile valley and ten in the Delta, probably the original nomes of the country. The civil discord implied in this persecution must have weakened the land; and then came the attack by the hawk worshippers from the south. In the legend of Horbehudti, or Horus of Edfu, we read that the crocodiles and hippopotami (animals of Set), attacked him, and his servants, armed with metal weapons, smote and conquered them, slaying 381 before the city of Edfu. Then the worshippers of Horus allied themselves with the sun worshippers, and "Horbehudti changed his form into that of a winged sun disc," and "took with him Nekhebt the goddess of the South and Uazet, the goddess of the North, in the form of two serpents, that they might destroy their enemies in the bodily forms of crocodiles and hippopotami." That is to say, the Horus, Ra, and serpent goddess tribes were all allied to attack the domination of the Set tribe. They gradually drove them back, and "Set went forth and cried out horribly"; he was finally struck down at *Pa-rehehu*. "Thus did Horbehudti, together with Horus, the son of Isis, who had made his form like unto that of Horbehudti." That is to say, the rest of the Horus worshippers joined the Horus-Ra party.

History as Reflected in Mythology

End of Prehistoric Times

The final battle and expulsion of Set was at Zaru on the eastern frontier of Egypt. This, in mythological form, seems to give the history of the driving out of the Semitic population of the later prehistoric age, by the dynastic race descending from Upper Egypt, at the close of the prehistoric period. An actual result of this war, all through later times, was the multitude of towns named Samhud, or "United to Behudti," marking the allies of the Horus party.

Historical Slate Palettes. Of the period of the conquest by the dynastic races, which closed the prehistoric age, there is an invaluable series of monuments carved on slate. These carved slates are the elaborated outcome of the slate palettes used for grinding the face paints throughout the prehistoric age. A similar elaboration of a simple article is familiar in modern times in the snuff-box. A plain receptacle of bone or wood was decorated, plated, made of silver and of gold, inlaid with diamonds and painted with the costliest miniatures, and yet—it was but a snuff-box. So the plain slip of slate was carved into animal outlines, had animals scratched on it, then

signs in relief upon it, and at last was covered with the most elaborate carvings, and yet—it was but a paint grinder, and had always the pan for colour carved on it, exactly of the shape of the pans on the painters' palettes of that age. Every stage can be shown, from a formless slate to an artistic scene in relief. There are many stages to be seen in the artistic development.

A. In the prehistoric age are the scratched outlines.

B. The well-incised elephant is as early as S.D. 33–41; and with it are those signs in low relief.

C. The high relief sign is of S.D. 60–63.

D. On the boat slate, the drawing is much more detailed than on the boats of the Hierakonpolis tomb of S.D. 63. We can hardly separate this from the work of the artistic new-comers, and it may well be about S.D. 70–75.

E. The animal slate seems to be next, as the treatment of the lion's hair is unlike the following.

F. The four-dog slate, being a coarser but more elaborated design of the same type, may well be next.

G. The hut slate shows for the first time the arrangement of lion's mane as on the ivory lions of King Zer.

H. The gazelle slate shows the same treatment more advanced.

J. The towns slate shows the wiry detail of muscles, beginning to appear in archaic manner.

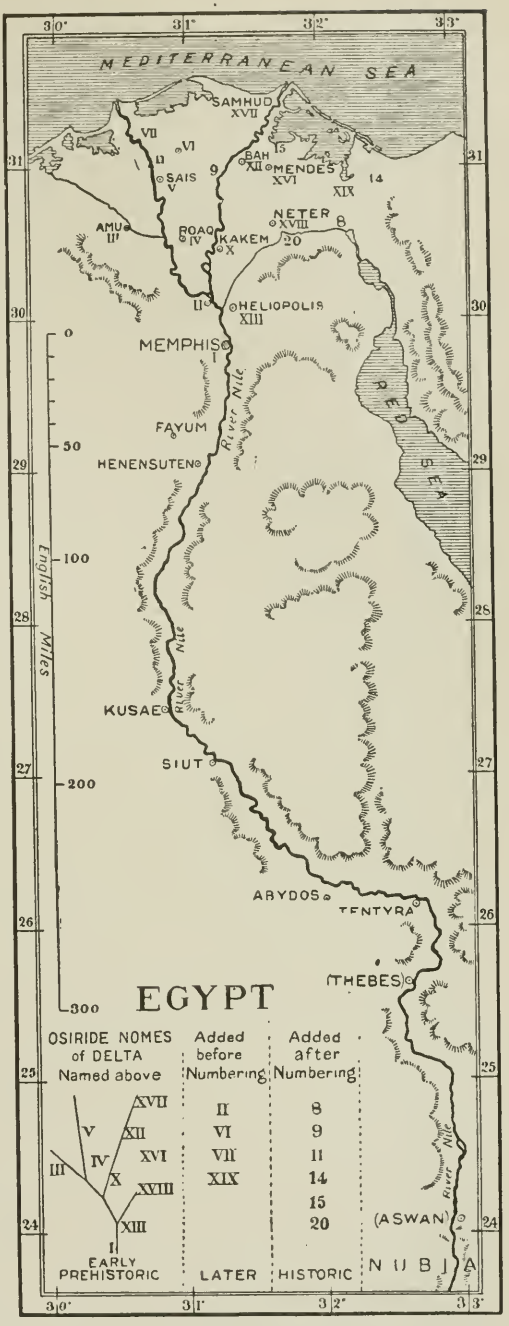
K. The bull slate has the same style carried out fully and finely.

L. The Narmer slate has a less forcible and smoother treatment of the bull, and brings us down to touch with the historic times.

The figures can be seen in Capart's "Primitive Art in Egypt," where they may be identified by these letters, corresponding to the paragraphs above: A, B, figures 61, 62; C, 63; D, 169; E, 171–2; F, 173–4; G, 170; H, 177–80; J, 175–6; K, 181–2; L, 183–4.

RACIAL TYPES. These slate carvings not only show the art of the time, but they present the different races and the details of their life, more fully than we find them for many centuries later. We see six different types of physiognomy in the early remains, and learn how complex the racial history must be at the most remote period accessible to us.

A. The *aquiline* type is that of the principal prehistoric race, closely like the Libyan on the west and the Amorite on the east. When mixed with negro it produced the exact type of a European-Negro mulatto. Probably equal to the Libyan. [See Heads 1 to 4 on next page.]



EGYPT IN THREE PERIODS OF ITS CIVILISATION

This map of Egypt shows Egypt in three of its early periods. (1) The earliest centres of culture were at the places where parts of Osiris were preserved in the prehistoric age, here named. (2) The second period is shown by other centres being placed in the right geographical order, all here numbered I to XIX, following down each branch of the Nile. (3) The third period is when other centres were inserted in the lists in the wrong order, here numbered 8 to 20. These three stages of Egypt's history are all before the monarchy.



THE EARLIEST PORTRAITS OF VARIOUS RACES IN EGYPT

Numbers 1 and 2 are the aquiline type, similar to 3, the Libyan, and 4 the Amorite. 5 is the curly hair type, 6 the sharp-nosed type, 7 the short-nosed type, 8 the forward beard type, 9–11 the straight-faced type of dynastic conquerors. 12 is King Khafra of the Pyramid age, reverting to the original type of 1 and 2.

B. The *sharp-nosed* type, firstly, with the hair in a pigtail, bringing stone vases as tribute, and sometimes dressed in long robe; secondly, with bushy hair and armed with spear, throw-stick, mace, bow and arrows. Probably the Arabian mountain race mixed with Libyan. See figure 6 on this page.

C. The *curly hair* type, with plaited beard, conquered and destroyed by type B. Probably from North Syria, by sculptures there. See figure 5 on this page.

D. The *forward beard* type, with close-cut hair; much like the figures on early Naukratite vases. Probably a coast people of Libyan connection. See figure 8 on this page.

E. The *short-nosed* type, a variety of D, apparently belonging to the Fayum. Fig. 7.

F. The *straight-faced* type of the dynastic conquerors. See figures 9–11 on this page.

All of these different peoples were in continual mixture and struggle during the few centuries before the first dynasty. Looking to the tribal hints given by the mythology, it seems probable that :

A represents the early Osiris and Isis worshippers ; B the first dominance of Set ; C the second irruption of Set ; D and E the allied Osiris and Isis worshippers of the Delta and coast who helped to expel Set ; and F the hawk Horus worshippers, who took the lead in driving out B and C by alliance with A, D and E.

Dynastic Race. The most essential difference between the prehistoric and the dynastic people is in their artistic capacity. The earlier peoples, though highly skilled in mechanical detail and handling, were yet very crude in their copying of any natural forms. But as soon as we reach the dynastic race we find that there is an artistic sense and power in their work, which puts even the roughest of it far above all that had gone before. The earliest examples

of their sculpture appear to be the colossal figures of the god Min, found at Koptos. These are of the most primitive style possible, the limbs scarcely marked off from the trunk, and no details of form attempted. But on the side of each there is a patch of hammer-work outlining some figures, perhaps a copy of embroideries on a skin pouch hung at the side. These are figures of a deer's head and pteroceras shells on one, swordfish, shells, and standards of the god on another, and the same objects, together with an ostrich, elephant, hyæna, and calf on the third. All are but roughly hammered round, yet the spirit and correct forms of the animals are of an entirely different order from anything that had yet appeared in Egypt. The promise of all the artistic triumphs of thousands of years to come is clearly seen in these decorations of the rudest statues known.

Earliest Promise of Greatness

The source of this dynastic race can only be inferred. Though marked off from the earlier inhabitants by their artistic taste, and by their use of hieroglyphic writing, we know so very little of the early history of any other lands near Egypt that we cannot yet trace any link to their original source. On looking in various directions, it seems at least clear that they do not belong to the southern tribes, to which they have no resemblance ; nor can we suppose that the Libyans, who appear to be one with the prehistoric people, would also supply a race so different in face and in habits. The north and Syria seem barred by the earliest centres being at Abydos and Hierakonpolis in the south of Egypt, from which they conquered the north.

Mystery of Dynastic Race

Lastly, no source seems open except the East, the road from which joined the Nile at Koptos. It is there that the earliest statues have been found, and the decoration on those comprises the swordfish and pteroceras shell belonging to the Red Sea. Such seems to have been the road of the dynastic race into Egypt ; but the origin of that race yet awaits research. There are undoubtedly some Babylonian elements in their culture, and somewhere at the south end of the Red Sea lay Punt—the "divine land" of the Egyptians. Thus we are tempted to look to some migration from Southern Arabia, whence



THE FIRST PROMISE OF THE ARTISTIC TRIUMPHS OF EGYPT

These animal figures were wrought by hammering around on the surface of the colossal statue of the god Min, found at Koptos, and show the beginning of the wonderful art of Ancient Egypt. It is the work of the earliest dynastic people, who have passed beyond the stage of making rude scratches on walls and on pottery, and have arrived, as the figures of the ox and the hyæna prove, at a real conception of the methods of sculpture.

also may have proceeded the kindred Sumerian culture, a few centuries later. From this centre in Pūn, or Punt, it may have conquered and colonised Egypt, and then later passed on up the Red Sea to the coast of the Pœni and their later Punic colony—Phœnicia and Carthage. Such is a pleasing co-ordination, but whether we shall ever recover the evidence to prove or disprove it hangs upon the chance of the past and the activity of the future.

The Way the Conquerors Came

Conquest of Egypt. The conquest of Egypt spread down from the south to the north. The earliest centres were Abydos and Hierakonpolis. Probably Edfu was as important, or more so; but the great Ptolemaic temple there being still complete, the remains of the earliest kingdom are sealed beneath its pavements. The conquest must have been a gradual process; it is described as such in the myth, many times and in many successive places was Set defeated and repelled. And the probability is that tribal war of such a kind would only gradually transfer district after district from one holder to the next. We know how in England the conquest occupied three centuries, from the Saxon landing to the first Saxon king of all the land. So it may well have been in Egypt.

We read in Manetho of ten kings of Thinis (Abydos) who ruled for 350 years before the first dynasty of kings of all Egypt. And we know, from the fragment of the Palermo Stone, that at least thirteen kings of Lower Egypt were recorded before the first dynasty. It is obvious from this, and from the probabilities of the conquest, that there were Kings of Upper Egypt before the first dynasty; and there is no reason for not accepting this statement of Manetho as being equally correct with his account of the first dynasty, which we can verify. Of the actual course of the conquest, one fragment of carved slate has preserved the record. Seven towns are represented upon it, each attacked by one animal of the standards of the allies. These towns may be tolerably identified by comparing the hieroglyphics placed within them with the names known in historic times. The upper row of four towns seem to be Mem in the Fayum, Hipponon, Pa-rehehui, and possibly Abydos; and the lower three towns were probably in the delta, though there are the uncertainties of two northern similar names.

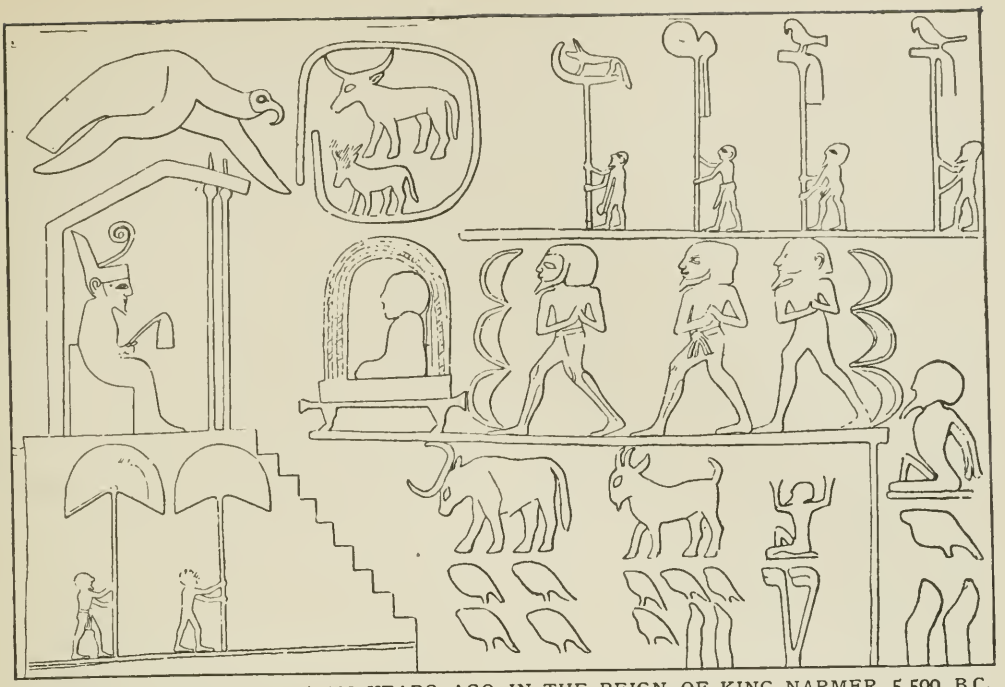
Kings Before History

Dynasty O. The contemporary remains that appear to belong to this age of the Kings of Abydos (which we may call Dynasty O) are the tomb chambers and funeral objects in the royal cemetery at Abydos. The plan of that cemetery shows a sequence of each later tomb being placed next to the previous tomb, and generally a receding further back into the desert as time went on. Now, in front of the tomb of Zer, the second king of the first dynasty, there are three large tombs alike, and four lesser ones. As objects of Mena, the first king, were found here, the other tombs are presumably those of six kings before the first dynasty, by their position. The actual objects found in these tombs are all of a more archaic style than those of Mena or any later king. The tombs themselves are all lesser and simpler than those of Zer and later kings. And the names of kings found here are all without the vulture and uræus title, but with only *neb neb*, the double lordship of Egypt. The whole of the evidence, therefore, goes to show that we have six tombs of the Thinite kings before Menes.

Graves of Unknown Kings

The names of these earlier kings, so far as we trace them, are Ka, Ro, Zeser, Zar, Nar, and Sma. Of these, Nar, or Narmer, has the most important remains—part of an ebony tablet, and an alabaster jar from his tomb, and the great slate palette, a great mace head, with scene of a festival, and an ivory cylinder, from Hierakonpolis. The next in importance is Zar, or the "Scorpion King," of whom there is a great carved mace head, and also some vases. The objects of the carvings appear to be celebrations of the *sed* festival; this appears originally to have been the slaying of the king every thirty years, making him Osiris, one with the god, while his daughter was married to the new king. By the time of these carvings, it appears that the king took the place of Osiris in the ceremonials, and his successor masqueraded as the new king, and was henceforth the crown prince—the heir to the kingdom.

There were brought to the festival of Narmer 120,000 captives, 400,000 oxen, 1,422,000 goats; and the system of numeration was as complete before Menes



A FESTIVAL SCENE OVER 7,000 YEARS AGO, IN THE REIGN OF KING NARMER, 5,500 B.C.

A record of the festival of Narmer, a king of Abydos, who reigned before the first dynasty of kings of all Egypt. It indicates that when the festival of his own death was celebrated, in accordance with the ancient custom of killing the king every thirty years to make him one with Osiris the god, no fewer than 120,000 captives, 400,000 oxen, and 1,422,000 goats were offered. The numerical system is here seen to be complete up to millions.

as it was in any later time. The other mace head of King Zar shows part of the festival, and also the ceremony of the king hoeing the bank of a canal, probably at the inundation. We see the reclamation of the land, with men busy embanking the canals, and cultivating a palm tree in an enclosure of reeds, while they lived in reed huts with plaited dome tops, and used boats with a very high, upright stem. The carved slate palette of Narmer shows him grasping the chief of the Fayum, prepared to smite him, a scene which was repeated for five thousand years in all the Egyptian triumphs. The metal water-pot and sandals are carried behind the king by his body servant. On the other side of the palette is the king going to a triumphal ceremony, preceded by the scribe, *thet*, and four men of different types bearing the standards of the army, possibly connected with the four territorial divisions of the army found under Ramessu II. Before them lie ten slain enemies, with their heads cut off and put between their legs. The carving of the detail, and particularly the muscular anatomy of the king's figure, is extraordinarily fine and firm, and as true as any work of later time.

Planting and Building

Written History. Having now dealt with the history as drawn from the remains which have come to light, we now enter from this point on the continuous written history, which has come down from hand to hand without a break to our own times, during over seven thousand years. This history was compiled by the high-priest and scribe Manetho of Sebennytos in the Delta, and only a fragment of his work has been preserved on its full scale; but three later writers have given epitomes of it, and it is on their lists that we have to depend. These are Julius Africanus (221 A.D.), Eusebius (326 A.D.), and George the Syncellus (792 A.D.).

The Men Who Handed Down the Story

Unfortunately, much confusion has been caused by scholars not being content to accept Manetho as being substantially correct in the main, though with many small corruptions and errors. Nearly every historian has made large and arbitrary assumptions and changes, with a view to reducing the length of time stated. But recent discoveries seem to prove that we must accept the lists as

having been correct, however they may have suffered in detail. A favourite supposition has been that the dynasties named were arbitrary divisions of later times; but the earlier lists also show such divisions as far back as the eighteenth dynasty, and kings founding a dynasty used to copy the titles of the founder of the previous dynasty, showing that the change was recognised at the time.

An Ancient Historian and His Figures

Another idea has been that the dynasties were contemporary. But, on the contrary, in the overlapping of the tenth and eleventh and also the twenty-fifth and twenty-sixth dynasties, we can trace that Manetho was very careful to cut off from one dynasty all the time which he allows to another. As regards the general character of the whole length of time, we can show that Manetho's version in 271 B.C. at Sebennytos was the same as that given to Herodotus two hundred years earlier at Memphis. Herodotus was told that from Menes to his time were 330 kings, and the totals of Manetho are 192 + 96 + 50 to Artaxerxes = 338, so that, in spite of corruption in detail, the totals seem to have been correctly maintained.

In earlier times we can compare Manetho with the fragments of the Turin papyrus, written in the eighteenth dynasty; and here, in one of the most disputable points—the kings of the thirteenth dynasty—the average of eleven reigns legible in the papyrus is 6½ years, and Manetho states sixty kings in 453 years, or 7½ years' average. The general character of a great number of short reigns in this age is quite supported. Then in the eighteenth dynasty there is a rising of Sirius in the movable calendar, in the twelfth dynasty another rising of Sirius, and some seasonal dates, and in the sixth dynasty are two seasonal dates. [Owing to the ignoring of leap year, the Egyptian months shifted round the seasons in 1,460 years; hence any seasonal date can only recur once in 1,460 years, and fixes an absolute date in that cycle.] All of these agree with Manetho; and though the seasonal dates are vague, they at least show that there is not an error of several centuries in the total. In the earliest times there is the account of the first dynasty, the names and succession of which are verified by the sculptured lists in the nineteenth dynasty and by the actual graves of the kings. Every accurate test that we can apply shows the general trustworthiness of Manetho, apart from minor corruptions.

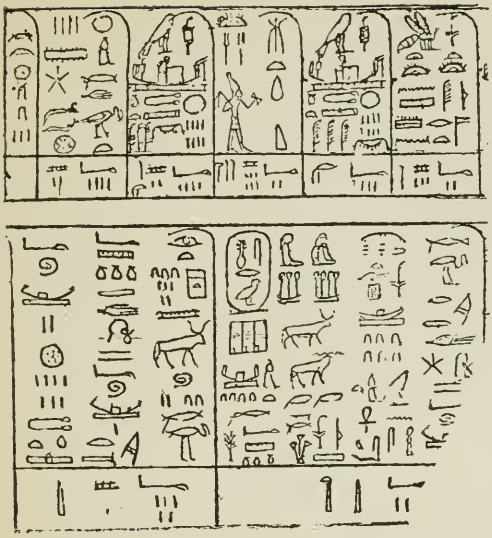
Material for History of Early Times

It is naturally a question what sort of material existed for an accurate history of the early times. The fragment of annals known as the Palermo Stone was engraved in the fifth dynasty, and it recorded the principal events of all the years back to the beginning of the kingdom, a thousand years before, the height of the Nile for every year, the length of every king's reign and of interregnum to the exact days. With such a record of the most remote times carefully maintained we have every reason to suppose that the high-priests and sacred scribes had adequate information as to the general course of their history. And we can see by the Turin papyrus how in the eighteenth dynasty there was a full historical list of all the kings, with their length of reigns, dynasties, and summations of numbers and years at each of the large divisions. Thus it is proved that there were historians at various periods who compiled and edited



THE EARLIEST DETAILED SCULPTURE

This carved slate palette of King Narmer shows him grasping the chief of the Fayum, prepared to smite him, a scene which was repeated for five thousand years in all the Egyptian triumphs. The sculpture shows anatomical treatment for the first time in art.



A RECORD OF EVENTS IN 4750 B.C.

A part of early annals known as the Palermo Stone. Each compartment contains the events of one year, with the height of the Nile in cubits stated below it. The lower right division records: "Building of a ship 170 feet long, and of 60 ships 100 feet long. Conquest of negroes, bringing 4,000 men, 3,000 women, and 200,000 cattle. Building a wall of the palaces of King Sneferu. Bringing 40 ships of cedar (from Syria)." The left division reads: "Making 35 hunting lodges and 122 tanks for cattle. Building a ship of cedar 170 feet long, and two other ships of 170 feet. 7th census of cattle."

the history, and so provided a solid groundwork for later writers, such as Manetho.

The Witness to Early Civilisation

The materials that we have for studying the civilisation of the early dynasties are the royal tombs and steles, the tablets of the annals, the sealings of officials, the inscribed stone bowls, glazed pottery, ivory, and wood, the rock steles of Sinai, fragments of buildings of the second dynasty and onward, the steles of private persons and their graves.

Royal Tombs. The tombs show that brickwork was familiar on a large scale. The prehistoric houses and tomb chambers were by no means slight. The town at Naqada has house-walls about two feet thick, and a town wall nearly eight feet thick. The brick-lined tombs are sometimes as large as 8 ft. by 12 ft. The kings' tombs of Dynasty O are about 10 ft. by 20 ft. Those of Narmer, Sma, and Mena are about 17 ft. by 26 ft., with walls 5 ft. to 7 ft. thick. Under Zer there is a great extension; the brick pit is 39 ft. by 43 ft.; it contained a wooden chamber 28 ft. by 34 ft., and it was surrounded by many rows of graves—318 in all. The later tombs of the first dynasty are less imposing. At the end of the second dynasty the tomb of Khasekhemui consisted of fifty-eight chambers covering a ground 223 ft. long and 40 ft. wide. The sizes of bricks were between 9 in. and 10 in. long, half as wide, and under 3 in. thick, in the prehistoric and through the first and second dynasties.

In the Kings' Tombs

Wood was used on a large scale. The royal tombs show beams for framing of about 10 in. wide and 7 in. deep, and 18 ft. or 20 ft. long, and these beams supported chamber sides and floors formed of planks 2 in. or 3 in. thick. The roof was made of similar beams, covered with boards and mats, which sustained 3 ft. or 4 ft. of sand laid over the tomb. Such was an extension of the roofs of poles and brushwood which were laid over the prehistoric tombs, and over the lesser tombs of the officials of the early kings. The sign for royal architect in the earliest inscriptions is that of a carpenter, the "two-axe man."

The stone steles were of limestone in the first dynasty, and in the end of the first dynasty the steles of Qa are of black quartzose stone. Those of Perabsen in the second dynasty are of very tough syenite. The carving of all these is in high relief, finely and boldly cut in a simple, clear style. At the end of the second dynasty a stone-built chamber appears for the first time; the blocks have naturally cloven surfaces so far as possible, and the rest of the faces are dressed with a flint adze. Of the same reign of Khasekhemui there is a granite door-jamb with signs in high relief. Granite had already been wrought flat for pavements in the previous dynasty, at the tomb of Den.

Tablets of Annals. The greater part of the inscriptions of this age are on small square tablets of ebony and of ivory, which were found in the royal tombs. These each have a hole in the top corner, and the sign of a year—the palm stick—down the side, as there is by the side of the entries of the events of each year on the early annals. They thus appear to be each the record of a year, and to have been strung together by the corner holes. There has not yet been any authoritative study of the meaning of these earliest inscriptions, which are very difficult to understand, owing to the transitory condition of ideographs having not yet yielded to syllabic

Egypt's Annual Record

usage. We can, however, glean many points about the civilisation from them. The towns were fortified with battlemented walls. The shrines were small sanctuaries, with a large court in front, like the temple courts of later times. At the entrance to the court were two tall poles, apparently with flags, which later developed into the row of masts with streamers in front of the pylon. The great festival at the close of each thirty years was one of the most important, already noticed here under Narmer. The sanctuary for it had two shrines back to back, each with a flight of steps, apparently for Upper and Lower Egypt. The dancing of the new king, or the crown prince as king, before the old Osirified king in the shrine, was one of the main events of the feast. The types of temple furniture were already fixed in the forms which lasted for several thousand years; the barks of Harakhti are shown with the same hangings at the prow, and are double—for the E. and W.—as in the temple of Sety I. Large bowls of electrum were offered in the temples by the king.

The Honour that Kings Died for

Wild cattle were hunted by trap nets, as was done much later in Greece. And there is shown a long road, with rest-houses and palm-trees, leading up to the great temple in the reign of King Zer.

Sealings. The clay sealings of officials show much of the organisation of the country. The oldest titles, under Zer, are the "Commander of the Inundation" and "Commander of the Cattle." In the reign of Zet we find a "Commander of the Elders" and "Archon," or chief of the city; also the temple property, or "Inheritance of the Chief God," is named. Under Merneit and Den there is a prince (*ha*). The vizier was "Commander of the Centre," probably the major domo of the Court, and also "Over-head of the Commanders." There are further named a "Royal Sealer of the Vat of Neit," the "winepress of the north," and a "Deputy of the Treasury." In later reigns there is an "Over-head" of a city. And under the second dynasty the titles are "Royal Sealer of all Deeds," "Scribe of Accounts of Provisions," "Sealer of Northern Tribute,"

Officers of the Empire



A RECORD OF A YEAR'S EVENTS: EBONY TABLET OF KING MENA, 5500 B.C.

The greater part of the inscriptions of the first dynasty are on small square tablets of ebony and of ivory. These each have a hole in the top corner, and the sign of a year—the palm stick—down the side. They thus appear to be each the record of a year, and to have been strung together by the corner holes. They were found scattered in the tombs.

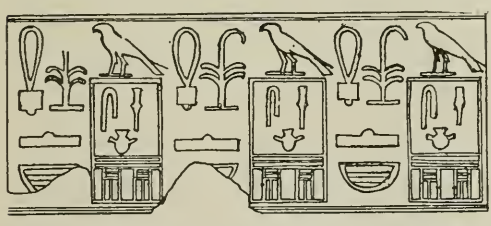
"Collector of Lotus Seed," and "Chief Man Under the King." These titles are from but a very small part of the bureaucracy, only those whose seals were affixed to the royal provision which was placed in the tomb; but they suffice to show the regular organisation of the government at that age.



TOMBS OF KING ZER OF THE FIRST DYNASTY, 5400 B.C.

Brickwork was common in the houses and tomb-chambers of the prehistoric period, and in the time of the kings of Abydos the building of the tombs was greatly extended. Here are seen the brick partitions to contain offerings, around a wooden chamber now destroyed. Beyond this all round were 318 graves of the royal servants.

STONE VASES. The stone vases for the royal palaces were cut in many kinds of hard rock. The rarer kinds are rock crystal, serpentine, and basalt; limestones, porphyry and syenite were more usual; and the commonest materials were metamorphic rocks formed from volcanic ash verging into slate, dolomite, marble, and alabaster. These materials were mostly selected for their beauty. The red porphyry is the rarest, being only known in a bowl of the time of Mena, and two prehistoric pieces. Black porphyry with very large detached white crystals belongs only to the age of Mena. Pink granite, blue-grey volcanic ash, the quartz crystal, and the pink limestones are all very beautiful materials. The hardness does not seem to have been aught but an attraction, as the finest work is always put on the best materials; whereas the soft alabaster and slate did not seem to challenge any great amount of care. The working of the inside was always done by grinding with blocks, sometimes having first removed the axis by a tube drill hole. The outside was dressed by chipping, hammer-dressing, and hand polishing; sometimes done by circular motion on a block, but often by crossing work by hand. The readiness with which oval forms were made shows how little depended on circular motion.



THE SEAL OF AN EGYPTIAN OFFICIAL

Much exact knowledge of the life of ancient Egypt is derived from the clay seals of high officials. The oldest known titles are those of "Commander of the Inundation." The seal here is that of the "Southern Sealer of all Documents of King Sekhem-ab," 5100 B.C.

Two-Colour Glazing

The use of glazing had been already invented early in the prehistoric age, as far back as S.D. 31; but it was only applied to beads and small amulets. The earliest glazed pottery vase known is of Mena, and this has his name in violet glaze inlaid in the green glazed body. Glazed vases continued to be made throughout the first and second dynasties, but became rarer, and they have not been found revived till much later times. But ivory and wood were largely used for carved objects, sometimes of elaborate design. One of the most distinguishing points of the age of the early kings was the minute carving in imitation of leafage and basket-work, which was mainly done in slate, but also in wood. The fragments which remain show most elaborate patterns worked out with minute attention to detail. Nothing of the same kind is known in any other age.

MONUMENTS. There are but few monumental remains from these early dynasties. The great rock-cut scene of Semerkhet conquering a Bedawy chief in Sinai is the main example. The figures are only summarily cut in the natural face of the sandstone; but the truth of the outline is better than in any of the more pretentious work of later times in that region. The scene of Sanekht—early third dynasty—is much poorer, and that of his successor, Zeser, is scarcely legible, the work is so rude and slight. The private tablets which were put over the graves around the royal tombs show that the fine work was limited to a small number of royal artists in the first dynasty, and that there was no general school of able men such as arose in later times. The figures and hieroglyphics are rudely hammered out, and the drawing is but clumsy. There is seldom more than just the name of the deceased. By the time of Den many are distinguished as the *Akhu-ka*, the "glorious soul"; while there is also a class apparently named "people of King Setui, daughter of the captive" —*i.e.*, slaves born of captives taken in his wars.

Remains of the Oldest Sculpture

It appears that the use of fine materials was at its height under Mena and Zer. Zer has the largest and best-built tomb, Zet shows the greatest delicacy in work, and Den seems to have had the most showy objects. The changes in about five generations here were much like those in an equal time from Amenhotep I. to III. in the eighteenth dynasty. Then decay markedly set in, and there was no revival until the Pyramid kings. But some development in the use of materials went on; and Zeser, of the third dynasty, is said to have built a stone palace; while Khasekhemui, a generation earlier, had a limestone chamber for his tomb, and carved granite for the door-jambs of his temple, at about 4950 B.C. These instances are the earliest use of stone for construction that are yet known; though as early as the middle of the first dynasty King Den had a pavement of red granite in part of his tomb.



THE EARLIEST SCULPTURE

There are but few monumental remains from the early dynasties. The great rock-cut scene of Semerkhet, of which this shows a part, is the main example. The figures are only summarily cut in the natural face of the sandstone; but the truth of the outline is better than in any of the more pretentious work of later times in the same region.

PYRAMID BUILDING. We now approach to the well-known age of the pyramid builders, when the civilisation appears at its highest development in most respects. We shall not deal with this in detail, as it falls into the ordinary historical period which appears elsewhere in this work [see Egypt]. But it may be useful to give the most essential facts of the material civilisation, which may otherwise be lost sight of in the mass of the history.

Age of the Pyramid Builders

In stonework the accuracy reached its highest point in the fourth dynasty, when the Pyramid of Khufu was constructed with an average error of less than 1 in 15,000 of length, and even less in angle. The later work fell off from this accuracy; but in the twelfth dynasty the granite sarcophagus of Senusert II. was wrought with an average error in straightness and parallelism of under seven-thousandths of an inch, and an error of proportions between different parts of less than three-hundredths of an inch. There was no attempt to reach this high degree of accuracy in the later work. In sculpture the main character of the work of the Pyramid kings is its dignity and grandeur, representing individualism on the highest plane of abstraction.

Under the twelfth dynasty the personality is weaker and the style that of a formal school, highly trained but dependent upon training. In the eighteenth dynasty the vivacity of expression is directed to a purely personal appeal,



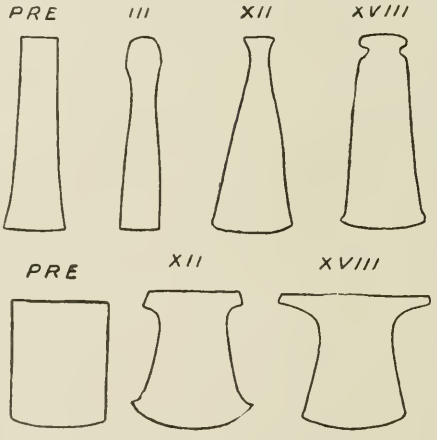
THE BUILDING OF THE PYRAMIDS IN THE ZENITH OF EGYPTIAN CIVILISATION

The age of the Pyramid builders may be regarded as the height of Egyptian civilisation. The greatest accuracy in stonework was reached during the fourth dynasty, when the Pyramid of Cheops, or Khufu, was constructed with an average error of less than 1 in 15,000 of length, and of even less in angle. In the twelfth dynasty the granite sarcophagus of Senurset II. was wrought with an average error in straightness and parallelism of under seven-thousandths of an inch.

more of emotion than of character. After that there is nothing but copying, good or bad. The growth of shipping at the early date of Sneferu, the end of the third dynasty, is surprising; and the record that we happen to have shows how much probably went on at other times, there being built, in one year sixty ships of 100 ft. long, in the next year two of 170 ft. long.

The Great Navy of Egypt

Metals. The use of copper is as remote as the beginning of the continuous civilisation in the prehistoric age, about 8000 B.C. It increased in quantity down to the eighteenth dynasty, and it was hardened by using arsenical copper ores, and leaving oxide in it; this, with hammering made it equal to soft steel for working purposes. Rare instances of tin, probably derived from natural mixture in the ore, are known from the third dynasty; but there was no regular use of it until we find pure tin, also known about 1500 B.C. Thence bronze was the main material until Roman times. Iron had been sporadically found in the fourth, sixth, twelfth, and other dynasties, and was known for about 4,000 years before it came into general use in Greek times. This agrees with its having been obtained from native masses rarely discovered, as has been the case in North and South America. Such native iron is the result of volcanic action on iron ore in contact with carboniferous strata. All these conditions exist in Sinai, and hence native iron might be found there. By about 800 B.C. iron was used for knives, but with a handle of bronze cast upon it to save the rarer metal. The iron tools in Egypt from the seventh to fifth century B.C. are all Assyrian or Greek, and it is not till Ptolemaic or Roman times that bronze tools disappear.



TOOLS OF ANCIENT EGYPTIANS

The plain strip of copper used for an adze in the early prehistoric age became in historic times widened at the edge, and had a slight contraction at the top; but the straight strip was kept up for 7,000 years without any attempt at a haft, simply lashed on to a bent handle. It is not till about 800 B.C. that any use of a haft occurs in Egypt, and then only for a hoe. The different dynasties are indicated in the examples here given.

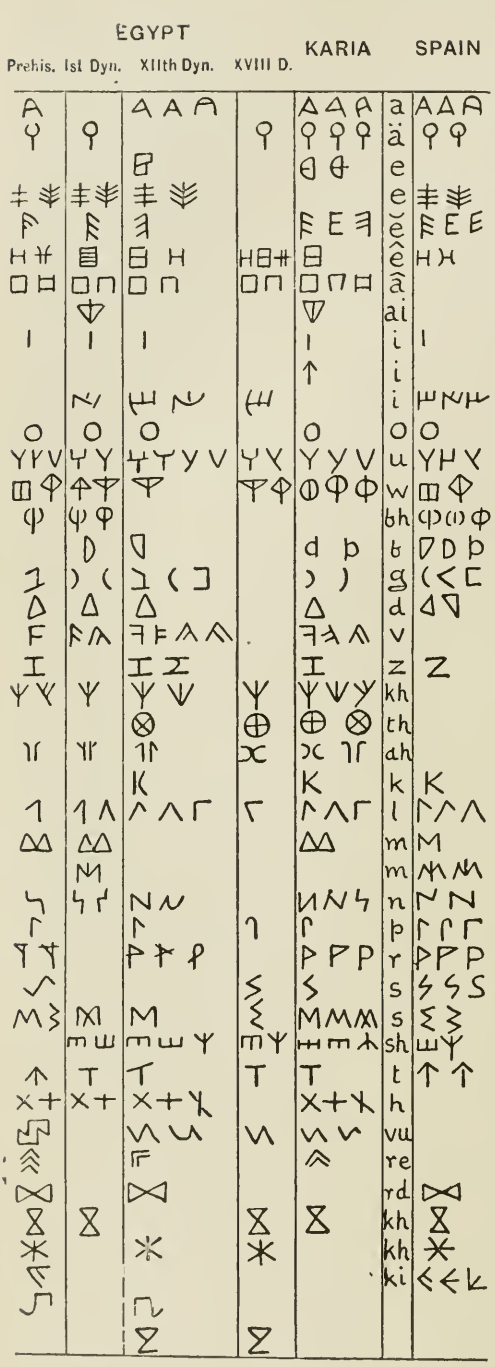
The forms of tools varied very little. The plain strip of copper, which was used for an adze in the early prehistoric age, became in historic times widened at the edge, and had a slight contraction at the top to assist in binding it on; but the straight strip was kept up for 7,000 years without any attempt at a haft, simply lashed on to a bent handle. It is not till about 800 B.C., or later, that any use of a haft occurs in Egypt, and then only for a hoe; while in Babylonia axes cast with a strong haft were used before 3000 B.C. Nor was a haft used for a hammer—a smooth stone in the hand was the only beating tool; while for striking tools a wooden mallet was used, cut out of a block. The axe began as a plain rectangle of copper, sharp on one edge; projections at the back were added, until they were half as long as the breadth of the axe, but no haft was attempted. The saw was used before the pyramid period; and also the saw and tube drill set with hard stones for cutting granite. Drills for boring vases were usually blocks of stone fed with sand and water, or probably emery for cutting the harder stones. Socketted chisels were an Italian invention in the later Bronze Age, about 900 B.C., and were copied by the Greeks, in iron, about 500 B.C.; but they were never used except under Greek influence in Egypt. Shears are also Western, and were unknown till Greek times in Egypt.

Oldest Rock Drills

Glazing and Glass. The very ancient art of glazing, already used in two colours under Mena, did not take any new form till the eighteenth dynasty, when it was greatly varied by new colours and new applications. Large objects, five feet high, were covered with a single fusing of glaze; minute ornaments, for stitching on garments, blazed with the brightest red, green, blue, or yellow; while whole inscriptions were executed in coloured glaze hieroglyphs, inlaid in the white stone walls. Glass, however, was not made separately until about the time of Tahutmes III., 1500 B.C. There is no earlier example of true glass,



ONE OF THE WORLD'S OLDEST MONUMENTS: THE GREAT STEP PYRAMID AT SAKKARA
This pyramid was built by King Neterkhet of the third dynasty, about 4900 B.C.



THE BEGINNING OF THE ALPHABET

The signary which was used in various early ages is here shown, as it has been gathered from examples of over 100 signs found in Egypt. Closely related to these are the early alphabets of Karia and Spain, the latter alphabet containing over 30 signs. It is from this prehistoric signary that the present Roman alphabet has been gradually selected during past ages.

nor any representation of working glass. All the truly Egyptian glass was wrought pasty, and never blown.

Blown vases belong entirely to the Roman age and later times. The large blown glass lamps of Arab age, covered with fusible enamel designs, are highly skilled pieces of work. The uses of glass to the Egyptian were mainly for beads, for coloured inlays in wood of shrines or coffins, and for variegated glass vases. The beads were made by winding a thread of glass on a wire; the vases, likewise, were made by modelling on an infusible core, held on a mandrel, and winding coloured glass threads on the body. The inlays were often of one colour, generally deep blue imitating lazuli; but often mosaics were used, made of a bundle of glass threads fused together, drawn out, and then cut off in slices. Such are all of Greek or Roman age. An important use of glass in Roman and Arab times was for weights, and for stamps impressed on glass bottle measures, inscribed with the names of the ruler and the maker.

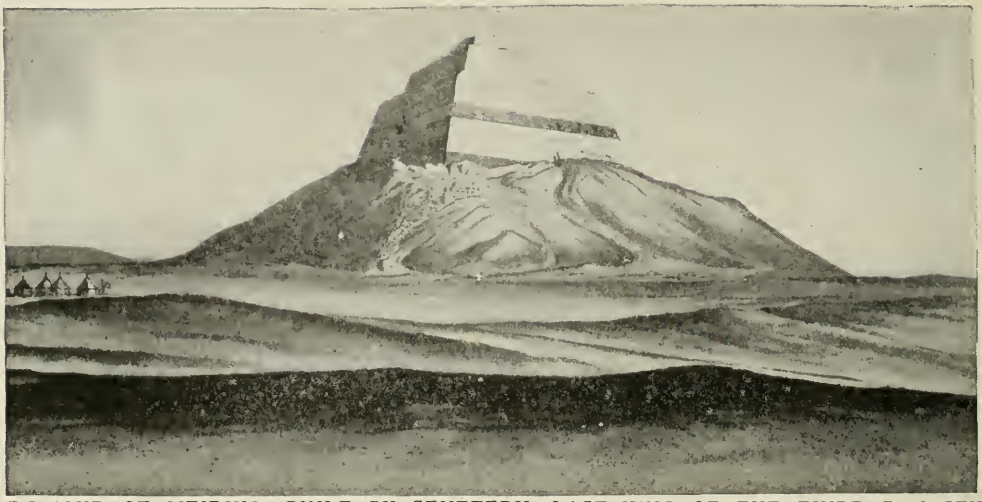
Taste of the Times

Lastly we may note the variations in the nature of the Egyptian literature, as reflecting the civilisation. The earliest tales are those of magical powers, belonging to the pyramid age. Next, in the Middle Kingdom, comes the contrast between town and country, and the tales of adventure in foreign lands. In the New Kingdom the contrasts of character are the main interest, and, in the late tales, the pseudo-historical romance of the great tournament of the Delta, or the antiquarian interests of a priest. These subjects of romance varied as much or more than the actual grammar and language.

ALPHABET. One subject of great European interest should be noted here, as Egypt has thrown much light upon it. The origin of the alphabets of the Mediterranean has been disputed, without historical knowledge of the examples of such signs in early ages. The Egyptian hieratic and the archaic Babylonian signs may have, perhaps, added a few to the Mediterranean signary, but neither source can at all account for it. The alphabet is by no means a clean cut series of 22 signs; it is a very complex tangle of parallel groups of signs in different lands, more or less alike. Of these groups two of the



THE WANDERERS OF THE DESERT, AMONG WHOM EGYPTIAN CIVILISATION GREW UP



PYRAMID OF MEIDUM: BUILT BY SENEFERU, LAST KING OF THE THIRD DYNASTY

This tomb was begun as a square block of masonry, and was enlarged by successive coats, which are here seen. Then one smooth coating of sloping blocks was put over all from bottom to top, and so the first real pyramid appeared in 4700 B.C. The pyramid coating has been destroyed and only the base remains under the rubbish mounds.

largest are those of Karia and Spain, comprising over 30 signs, and these have many points of peculiarity in common. This is sufficient to show that the fuller alphabet is the original form, from which the shorter lists have been selected. Now, in Egypt there are found scratched on pottery and woodwork over 100 signs, and these comprise the forms of the fuller alphabet. Moreover, these Egyptian examples are found at about 1200 B.C., or only a few centuries before the Karian and Spanish alphabets, again in 3000 B.C., in 5500 B.C., and before 7000 B.C. Of 41 alphabetic signs, 19 occur in 1200-1400 B.C., 32 in 3000 B.C., 27 in 5500 B.C., and 31 in 7000 B.C. As we have not a very large amount of material, the occurrence of from 19 to 32 out of 41 signs is as much as we could expect, as all the 41 occur in one period or another. The early date of these puts all derivation from the subsequent hieroglyphics entirely out of the question. We can as yet only say that a large signary of 40 or more linear forms was in continuous use from before 7000 B.C. downwards, and that these furnish all the forms of the fuller alphabets, those of the short Phœnician and Greek list of later time.

We have now outlined the rise of civilisation in Egypt, apart from the history of the country, which is dealt with separately; and we turn to the other great valley of early civilisation, in Mesopotamia, to compare the resemblances and the differences between the two lands.

W. M. FLINDERS PETRIE

NOTABLE DATES OF ANCIENT CIVILISATION

EGYPT

B.C.	
8000	Continuous civilisation of prehistoric age began .. S.D. 30
7000	Asiatic invasion .. .. .. S.D. 40
5800	Invasion of dynastic race
5500	Mena rules all Egypt .. .. S.D. 80
4700	Khufu builds Great Pyramid
4000	Invasion from north
3400	Middle Kingdom, twelfth dynasty
2500	Hyksos invasion, fifteenth dynasty
2250	Second Hyksos movement
1580	New Kingdom, eighteenth dynasty
1380	Tell el Amarna letters
701	Taharqa (Tirhakah)
570-26	Aahmes (Amasis)

BABYLONIA

B.C.	
Before 6000	Susa founded
5000	Ea founds Eridu and civilises the land
4700	Earliest monuments of Kings
4500	Urnina
3800	Sargon and Naramsin, Semitic rule
3300	Gudea
2280	Elamites conquer Babylonia
2129	Hammurabi
1572	Kassite dynasty
1380	Burnaburiash
690	Sennacherib
556-38	Nabonaid, fall of Babylon

THE RISE OF CIVILISATION
IN MESOPOTAMIA
BY PROFESSOR FLINDERS PETRIE

The first impression that strikes the reader in passing from the Egyptian to the Mesopotamian civilisation is the lack of that unity and conciseness which makes history in the Nile valley so intelligible, and its problems so well defined.

In place of the well ordered history of Manetho, with its numbered dynasties, and totals stated throughout, there is practically nothing stated before Nabunasir in 747 B.C. The mythological extracts from Berosus, and the list of Ktesias, which cannot be identified with any known facts, give no help in arranging the outlines of the history. In place of the uniform language and writing, which develops without a break during the whole history of Egypt, there is the entire break from Sumerian to Semitic. In place of the continuous importance of Egyptian capitals, there is the change from the principalities to Babylon, and thence to Nineveh. In place of the unified kingdom of the Nile valley, through the whole written history, the greater part of the documentary period is filled with rival principalities, within thirty or forty miles of each other, the tops of whose temples must have been visible over the entire territory of their respective states.

Disunion of Early Babylonia

As the general scale of Egypt is so familiar to the modern reader and traveller, it will be well to compare Mesopotamia with that. Babylon was twice as far from the sea as Cairo; and from Babylon to Nineveh was the distance from Cairo to Sohag. Or in other terms, starting from the sea, Babylon was as distant as Oxyrhynchos, Nineveh in place of Thebes, and the highlands of Carchemish, Commagene, and Lake Van were the equivalent of Nubia. The old land of Shumer was just the size of the Delta, and Akkad as large as Middle Egypt. The principalities of Eridu, Lagash, Ur, Erech, and others, were as far apart as those of the Delta—Bubastis, Benha, Sais, or Sebennytos. Indeed, it seems as if this were a natural unit-size of early dominions in a fertile plain.

Though the relative age of the beginning of civilisation on the Nile and the Euphrates is yet an uncertain matter, still it is clear that the unification of Egypt long preceded that of Babylonia. The earliest date of the scattered Sumerian kings is about that of the fourth dynasty; the earliest Semitic dynasty—Sargon and Naramsin—was contemporary with the ninth dynasty, and the rise of the dynasties of Babylon is of the later Hyksos age of the sixteenth dynasty.

The Nile and the Euphrates

EUPHRATES VALLEY. The conditions of the Euphrates valley are very different from those of the Nile. On the Egyptian coast the river runs into a strong current in the Mediterranean, which sweeps away its sediment and prevents any continuous growth of the coast. But the Mesopotamian rivers reach the sea-level at the head of a deep bay, the Persian Gulf, and hence there has been a continuous formation of new land at the estuary. The Mesopotamian valley and the Persian Gulf form one long drainage valley gently sloping down to a distance about twenty miles outside Hormuz, where the valley bottom drops suddenly three miles into the floor of the Indian Ocean. The slope of this valley so far as submerged, is about 1 ft. to the mile, and it is probably even less in the Babylonian plain, where sea-shells are found as far up as Babylon. This valley has been filled, and the sea-shore pushed downward, 47 miles in 2,200 years, or 115 ft. yearly, since Spasinus Charax—now Mohammerah—was founded on the shore in the time of Alexander. The account of a sea expedition to Elam by Sennacherib is usually interpreted as showing a more rapid growth; but in the uncertainty how far he went down a channel before entering the Persian Gulf, it is not decisive.

Sea-shore Moved 47 Miles

How far back the extension of land has been going on, and whether it was continuous to above Babylon, has not yet been proved. The appearance of the map much suggests that the original drainage bed ended—*i.e.*, the valley was submerged—at about the nearing of the two rivers by Sippara, and that all below this is the filling up of the estuary. Should this growth have extended uniformly back so far, it would give limits to the possible ages of cities—5000 B.C. for Eridu, 8000 B.C. for the whole plain of Shumer, 10,000 B.C. for Nippur, and earlier for the site of Babylon. This would bar the southern region from being as old as Memphis, and Eridu was probably open sea when Menes laid out his capital.

Range of Civilisation. In looking for the earliest movements of people that we can trace, it seems that the Semites must have extended from Northern Arabia into Upper Mesopotamia and Assyria. In short, Semitica stretched up to the mountain ranges of Armenia and Media. But the culture was barbaric, and probably they were nomads who had no fixed centres of life or stable organisation which could resist any united movement. At this period the Persian Gulf probably extended as far as Babylon. On their eastern flank were the mountain tribes, in what is known as Parthia and Media, south of the Caspian. How remote is the beginning of civilisation in this region has been found in the last few years. On the north-east extremity of Parthia, in the far end of Hyrcania, stands a group of mounds, near the modern Askabad, not far from the celebrated Turkoman stronghold of Geok Tepe. Here are 14 ft. of town ruins with iron, 15 ft. with copper and lead, about 70 ft. of ruins with wheel-made pottery and domesticated animals, and 45 ft. of remains with only rude hand-made pottery. What ages these represent we cannot judge until the full account by Prof. Pumpelly is issued. But in any case a very long period is involved. If the accumulation is at the rate found in Palestine, 4½ ft. per century, the periods would be perhaps 1,500 years for the



THE PLAIN OF BABYLONIA: ITS EXTENT AT DIFFERENT PERIODS IN HISTORY

This map shows how the Plain of Babylonia has been extended down by silting since 10,000 B.C. The dotted lines, marked 330 B.C. and 1830 A.D., show the known positions of the coast, as it shifted by silting up. These give an approximate scale of dating for the coast-line of earlier ages, which is marked here at each thousand years.

wheel pottery, and 1,000 years for the rough pottery, before the beginning of the age of copper.

At the other side of these countries stands the great mound of Susa, with over 80 ft. of ruins. The inscriptions show that about 26 ft. of the height was accumulated between about 4500 and 500 B.C., or in about 4,000 years. Yet before that there is a depth of about 50 ft. comprising three periods. In the upper of these is elementary cuneiform writing on tablets. Below that is a period of rather rough, thick pottery, painted with chequer patterns and closely-crossed lines, of the style common in early Syria and Cyprus. And at the bottom of all is a great quantity of very fine, thin wheel-made pottery of buff tints, with decoration of thin diagonal lines, rows of ostriches, and various patterns all derived from basket-work.

If the scale of accumulation of the historic times were to apply here, it would reach back to 12,000 B.C.; but if the far quicker scale found in Palestine applied, it would hardly reach 6000 B.C.

Measuring the Depths of Time

In any case we have here evidence of a civilisation apparently much earlier than that of Babylonia, and none of this earliest fine pottery has been found in the great plains. The highland civilisation may have begun as early, or earlier, than that of Egypt; but that of Babylonia started probably later than the North African culture on the Nile. Seeing, then, that there was a very early civilisation at Susa on the west of Media, and that further east on the limits of Parthia we meet another early centre, it is not surprising that the inhabitants of these regions united to spread down into the fertile plain which was created by the growing delta of Mesopotamia. These people belonged neither to the Semite of Arabia nor to the Aryan of Persia and India, but used an agglutinative language of entirely different structure from these others, and most akin to Turkish or Finnish. Having descended from their mountain homes, the people were known as Akkadu, probably meaning "highlanders," though there are other open derivations. And hence the northern part of the Babylonian plain, next to the Semitic Assyrians, was the land of Akkad; while the southern part, next to the sea, was known by the native Babylonian name of Sumer, or Shumer.

SUMERIANS. The civilisation of the Sumerians was more akin to that of the Chinese than to western types, especially in its art, its picture writing and devotion to literature, its capacity for town life, and its religious ideas. The cognate origins of the people may well account for this, and some more precise resemblances led Terrien de Lacouperie to the view that Chinese civilisation was an offshoot from the Sumerian stock in its old Parthian home.

China's Links with Babylon

The elements of life were well developed by the Sumerians. They were great agriculturists, and wrote works on the main industry of man, much as the Carthaginians wrote standard works prized later by the Romans. They fermented the grape and corn, and had alcoholic drinks. Cattle of all kinds were raised, and prized as stock, which was fed on grass or grain or oilcake. The horse is mentioned first in Semitic times, about 2000 B.C. Dates and figs were the principal fruits grown; and, indeed, the date palm seems to have had a far more important place in the civilisation than it did in that of Egypt. Both wool and leather were used for clothing, as might be expected.

BUILDING. The main structural industry of the country was that of brick-making and building. Immense piles of brickwork were made to support the temples, marking clearly the custom of the highlander Akkadi worshipping on the hilltops. The brick *ziggurat*, or five-stepped pyramid, at Nippur was 190 ft. by 128 ft., and about a hundred feet high. The earliest baked bricks are 8·7 in. by 5·6 in. by 2·2 in., and they were enlarged to 12 in. by 7·8 in. by 1·9 in. within the Sumerian age. Toward the close of that time large square bricks were used. Sargon made baked bricks 18 in. square and 3½ in. thick. From the time of Ur-Engur (3200 B.C.) onward the baked bricks were 11 in. or 12 in. square. Beside the baked brick used for pavements, drains, facings, and important work, the great bulk was made up of crude brick as in Egypt. For important purposes, such as store-rooms, the inside of chambers was lined with a coat of bitumen, rendering them damp-proof; and such a lining was used on tanks. Pottery is abundant in all ages, but we still need a study of the pottery such as has been

Materials for the Great Buildings



THE ANCIENT BABYLONIANS AND THEIR WEAPONS OF WAR

There is a fine study of weapons on a carving of Eannatum (4400 B.C.), where spears about 7 ft. long, with blade heads, are figured. Shields are shown reaching from the neck to the ankles, straight-sided, used edge to edge as a shield wall by a phalanx of soldiers. The heads of the men are covered by well-formed peaked helmets reaching down to the nape of the neck, with nose pieces.

made in Egypt, so that it can be used to date excavations in general. Stands for jars, framed of wood, were used as in Egypt; and also the clay sealings were of the same type in both lands. Stone vases were made to imitate pottery; and this suggests that the highlanders were only using basket-work when they descended into the plain, and therefore did not possess any types of onework.

Tools and We The common tools were used, such as knives and drills; and great skill was developed in seal engraving upon hard stone cylinders. Of weapons there is a fine study on a carving of Eannatum (4400 B.C.), where spears of about 7 ft. long, with blade heads, are shown; also shields reaching from the neck to the ankles, straight-sided, and used edge to edge as a shield wall by a phalanx of soldiers; while the heads are covered by well-formed peaked helmets, with nose pieces, and reaching down to the nape of the neck. Bows and arrows and daggers were also used; and stone mace-heads, of the pear shape used in Egypt, were important ceremonially, and often bear inscriptions. Woodwork was elaborated with carving, and used for bedsteads and stools, as seen in the seats of the gods figured on seals and tablets.

Clothing. Clothing varied a good deal. A primitive custom of nudity when offering to the gods was continued down to the close of the Sumerian age, as shown on the tablet of Ur-en-lil. The kilt was worn with a fringe, not reaching the knee; or it was worn from the waist to the ankles, as

by shepherds. A robe over the left shoulder reaching to the knee was used with a deep fringe all down the front edge and round the bottom. A long robe reaching to the ankles is shown on the figures of Gudea. But the most characteristic dress was that of ribbed woollen stuff, much like that of the fifth century B.C. in Greece, as on the Running Maiden. This stuff was worn as a flounced petticoat (Urnina 4500 B.C.), or in a longer form over the left shoulder and down to the ankles, as by Eannatum and Naram-Sin. A splendid flounced cape and long robe of this stuff is shown as worn by Ishtar on the Anubanini rock stele, about 3600 B.C.

SCIENCE AND ART. The system of number, weight, and measure was peculiarly Babylonian. Some people have theorised about all later standards having been derived in various intricate ways from those of Babylon. But it is very unlikely that standards should not arise in different centres, and still more unlikely that the complex derivations should be formed when the whole object would be to maintain a system in common.

But there is no question of the great advance of the Sumerian in these matters.

Science in Sumeria

The sexagesimal system, which is far more convenient for many purposes than the decimal, and which we still retain for time and for angle, was due to the Sumerian intellect, while the standards of weight, the talent, maneh, and shekel, were also from the same source. And we cannot doubt that the cubit was already in use by a people living in cities and carrying on business.

The style of art was clumsy, owing to the habit of crowding together as much as possible into the space, in order to form the record. The human forms are thick and short, and detail is firmly and perseveringly repeated. It entirely lacks, in its early stages, the spontaneous truth of the early dynastic work in Egypt. At the close of the Sumerian age, under Naramsin, there is a fine bold design in groups of figures, well proportioned, and with good action, recalling curiously the spirit of late Greek work from Praxiteles to the Pergamene warriors. The stages of change cannot yet be distinguished, owing to the scarcity of the dated examples that we have.

LITERATURE AND WRITINGS. It is in literature that we know the Sumerian best. Unhappily, other branches of archæology have been neglected, and even destroyed, in the eager search for tablets, and yet more tablets. By the thousand they are found, and hurriedly removed, while the architecture, crafts, and art-history are thrown aside in the process. The hunter for tablets in Babylonia, and for papyrus in Egypt, is a heartless wrecker,

Loss of History

without any interests beyond his own line. When so much has been sacrificed for the written record, we must glean all we can from it for the history of the civilisation, as most of the other material that might have been preserved has been sacrificed. The Sumerian language was the sole language of civilisation, until, at about 4000 B.C., the Semite began to conquer and to take part in the advance of the world. Yet the older tongue was by no means extinguished; it held its place as the official religious and literary language, like Latin in Europe. The literature of the world was in Sumerian, and only gradually did the new Semite intruders translate the older works or rise to writing a literature of their own.

The Sumerian literature was for long accompanied by a Semitic translation, like Latin and Saxon gospels; and syllabaries, vocabularies, and grammatical lists were written to teach the Semite the old religious language. Legal documents were drawn up in Sumerian, and it only gradually lost its precedence from 4000 B.C. down to 1600 B.C., when it was almost extinct, being only revived as a literary curiosity in the seventh century B.C.

The writing was a pictorial system like the Egyptian hieroglyphics. And so long as the Sumerian used it he clung to the pictorial origin even though obscured by the lineal style of drawing. On papyrus or parchment it is easy to make curved forms, and such were adopted in drawing the signs originally. But on clay, which was the all-

How the Semite Made His Notes

available material in the Babylonian plain, impressing lines is far neater than scratching them up; and the handy tool for making impressions was a slip of wood with a square end. Hence all the curves tended to become four or five-sided outlines, and all the detail became built up of little lines tapering off to one end, or "digs" with the corner of the stylus. Yet down to the close of the Sumerian age the forms of the objects can still be



Manseil

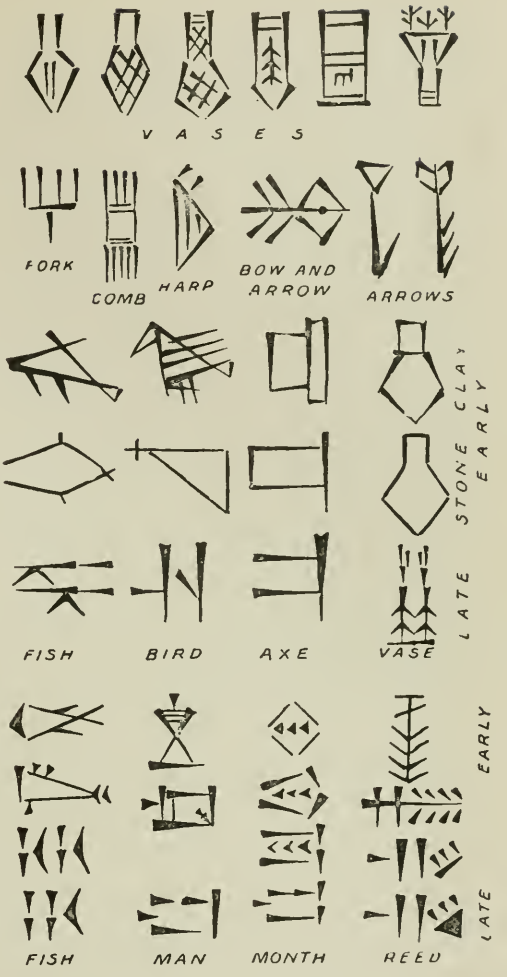
THE FINEST EARLY BABYLONIAN ART: TRIUMPH OF KING NARAMSIN, 3750 B.C.
This work, found in Susa, is curiously free and pictorial; it is unriva led by any early carvings, and most resemb es the action and spirit of late Greek sculpture. It marks the great period of the fusion of the Sumerian and Semite.

discerned, and they are still pictures rather than mere immaterial symbols.

The Semite, however, changed all this. He learned merely the sound values of certain forms, their meaning could not appeal to him, and he built up his words out of these sounds or syllables. He found it inconvenient to write in vertical columns, which was the constant Sumerian habit, and turned his tablet sideways to his hand, so as to make his signs along a horizontal line of writing. Hence these signs became familiar to him on their sides, and as they had to him no pictorial values, the position was indifferent. Lastly, he produced a syllabary of signs written with combinations of four forms of impress, a long line wider at one end, a short line, a tall triangle, and a small equilateral triangle, written in horizontal lines ; and each sign was standing on what had originally been its side. The wedge-shaped form of these lines has given rise to the name of wedge-writing, or cuneiform writing for this system.

The knowledge of this writing survived Greek influence for some four centuries after Alexander, only becoming extinct at the close of the first century of our era. In its long history, double that of the Roman alphabet at present, it had been used for very diverse languages. The Sumerian inventor had handed it on to the Semitic intruder, and he had passed it to the Syrian, the Mitannian, the Hittite, and the Vannic peoples. Probably it had kept its hold in its first home in Elam, where it is found in historic times, and thence it became the writing of Persia, and even of the Parthian, before it became extinct. The variety of languages and the extent of country which it covered is much like the scope of the Roman alphabet in Europe to-day.

The Story of a Language



THE DECAY OF PICTURE-WRITING

This illustrates the decay of pictures into signs, and shows very clearly how the cuneiform writing was developed from the earlier hieroglyphics. It will be noticed that the word originally rendered by a crude drawing of the object—"fish," for example—retains even in its final cuneiform style some resemblance to the tail of a fish. The cuneiform lettering was necessary to the Babylonians, as clay was the most abundant material in their land and could best be marked upon in lines without curves.

Law and Religion. In matters of law the Sumerian was well advanced. The needs of city life which he had developed necessarily required a full definition of rights and duties. The first law book was that of Ea, the god of civilisation, the Oannes of the later legends of Berosus. The decisions of judges were kept in abstract, and such case-made law served as a body of precedent to guide decisions. The position of women was on a level with that of men ; in the Sumerian hymns the woman takes precedence, and one of the great Sumerian divinities was Ishhtar, who became Ashtaroth of Syria, Athtar of Arabia, and hence Hathor of Egypt. In the Semitic system the goddess is but a feeble companion of a god ; but Ishtar was the great divinity of war, to whom the kings owed their triumphs, as well as the queen of love, who ruled the course of nature.

The religion of the Sumerians was like that of other Turanian races. These peoples have an aversion to the idea of a personal god, to which the Semitic peoples cling. The Samoyede believes in a multitude of local spirits, the Chinese

have their impersonal Heaven and the host of gnomes or earth spirits. Thus also the Sumerian thought of all objects as having a *zi* or spirit, good or evil, which needed to be appeased by the weak or commanded by the sorcery of the strong. Shamanism was the type of religion; and books of exorcisms and



THE SUMERIAN TYPE OF BABYLONIAN
The fact that the shaven type of face appears in all the monuments back to 4500 B.C. indicates that the Sumerians were shaven as they were the older of the two main races in Babylonia.

magic spells were in permanent use. The importance of the principalities naturally led to their local spirits being of general importance; and hence the political changes brought Sin the moon god of Ur, or Utuki the sun god of Sippar and Larsa, or Marduk of Babylon, into a leading position, and led toward the Semitic type of deities. How far this change was due to the beginning of Semitic influence we cannot now say. Other native gods were less personal, such as Ana the sky, Enlila the earth, and Ea the sea.

Types of Races. The physical type of the people is shown to us by the early monuments, though we hardly yet know enough of the early history to understand them fully. Two main types stand out entirely apart, the shaven and the full-haired. And when it is seen that the shaven type is that of all the earliest human figures, dating from 4500 B.C. and extending down to even 2100 B.C., while the full-haired type is not found on men before 3750 B.C., it is clear that the shaven is the Sumerian and the bearded is the Semitic type. The remarkable point is that the gods are represented with long hair tressed up and long beards from 4400 B.C.; and as early as we can go back there is never a figure of a beardless god. The reason probably is that personal gods were of Semitic origin, their worship was borrowed, and hence their forms. If so, we must see a large Semitic influence already acting on the earliest known Sumerian art. The variations of type may perhaps lead to some further distinctions. The full, curly, square-ended beard and long hair are usual for the gods, as seen under Eannatum (4400), Urenlil (4000), Gudea (3300), and Hammurabi (2100). The same beard, but with the hair done up into a disc (as on the Tello heads and Hammurabi), is worn by the King Anubanini (3600). The long and rather pointed beard is seen on Naramsin (3750), and Hammurabi (2100). The short, square beard is seen on the god, under Eannatum (4400), and on men about



THE SEMITIC TYPE OF BABYLONIAN
Men with full beards are not represented on Babylonian monuments until 3750 B.C.; hence it is clear that such figures represented people of the Semitic type. This portrait is from a sculpture of King Hammurabi.

Naramsin's age [see the seal of Ubilishtar]. The shaven type has a wide face, with a large prominent aquiline nose, best seen in the head from Tello. This type is



THE FAMILIAR BEARDED TYPE OF ASSYRIAN GODS AND MEN

Although the full-haired faces are later in appearing on the monuments of Babylonia, all figures of gods are shown as possessed of full beards and a wealth of hair. A familiar example is here reproduced. It is supposed that the Semitic race in Assyria was the first to personalise the deities, and hence the resemblance of the images to the features of the Semites.

that of all the human figures on the scenes of Urnina (4500), Eannatum (4400), and Urenlil (4000); and in the figures of the Scribe Kalhi (cylinder, 3750), Gudea (stele, 3300), the heads of the same age from Tello, and the later head of beautiful work at Berlin. The general conclusions may be that the beard was worn and admired by Semites, who elaborated a very full type for the gods; and that the Semitic influx, though ruling under Naramsin at Sippara, north of Babylon, was yet subordinate at the later date of Gudea, in the Sumerian south.

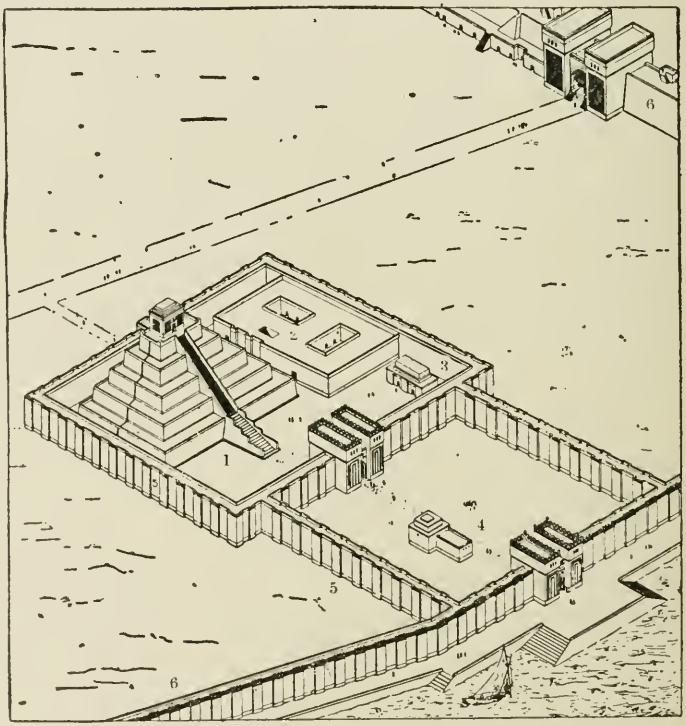
SEMITIC AGE. We now turn to the later stage of the civilisation, as it flourished under the mixed race of Sumerians and Semites, partaking of the culture of the older race and the higher moral tone of the less advanced people. The Sumerians, as we have noted, had pushed down from the Median highlands into the growing plain of Babylonia, while the earlier Semites remained to the

north in Assyria, and to the west in Naharaina and Syria. Sooner or later a fusion was inevitable; as we have seen already, the gods were of a Semitic type at a very early time, and gradually the union took place during three thousand years, until in the later times the product was unified in one strong civilisation which spread its strength far and wide to the Crimea, to Egypt, and to the deserts of Central Asia.

BUILDING. The old skill and abilities found a wide scope in this larger frame of life. The fundamental craft of brickwork was carried on to a vast extent. Every city had its great pile of an artificial hill of bricks, built in stages to support the temple of its god high above all. Immense walls surrounded the cities; those of Babylon were some nine miles around, and are stated to have been 85 ft. high and 340 ft. thick, surrounded by a moat lined with burnt brick laid in bitumen. Not only was brickwork used on this great scale in the Babylonian plain where stone was a luxury, but the force of example was so strong that the Assyrian, in his highland home, kept up the same scale of brickbuilding as his teachers, and used brick for his palaces and temples when stone would have been much more easily available.

In Babylonia, as in Egypt, the supply of material for brickmaking on a large scale is a serious question. For the great walls of cities, obviously a surrounding ditch was an advantage; but for the materials of houses, temples, and ziggurats, great pits had to be dug, or older buildings pulled down. At Nippur it was found that the later builders had torn down a long piece of the disused city wall and dug out a great pit below and around it. So in Egypt the outskirts of every village has its perilous hole where the bricks are made, which, in course of time, becomes a stagnant pond, and every ancient temple, with its fortifying wall, was built out of a large pit at its side which became the sacred lake of the temple.

A higher branch of building was the use of glazed bricks. In Egypt the use of glazed tiles for coating walls was boldly carried out in the earliest dynasties, before 5000 B.C.; but there was no glazing of the bricks, because in so dry a climate the Egyptian was never induced to burn his bricks. In the wet and damp of Babylonia, on the contrary, burnt bricks were usual, and all the facings and main divisions of structure were in the indissoluble material, which held together and protected the mass of crude brickwork within it. It was, however, mainly, or only, in the later times—from the ninth century onwards—that bricks glazed on the outer face were used for building. It seems that this was done not so much for utility—like our modern use of glazed bricks—as for the artistic effect of colours and designs. The grandest example of such work that is known is the façade of



A TEMPLE PLATFORM, OR ZIGGURAT, OF BABYLONIA

This restoration of the Temple of Bel at Nippur, from the designs of Hilprecht and Fisher, gives a good idea of the massive character of Assyrian architecture. The portion marked (1) consists of a stage tower with a shrine at top and a long stairway leading thereto; (2) is the temple proper; (3) house for "honey, cream and wine"; (4) "place for the delight of Bur-sin"; (5) is the inner wall and (6) the massive outer walls.

coloured glazed brick in relief, representing the royal archers, from Susa of the Persian age, now in Paris, restored from the fragments.

Beside baked brick, pottery was used on a large scale. Great jars occur in the earliest times, and cylindrical drains of large size, sufficiently wide for a man to descend in them for repair. In later times coffins of baked pottery of the Parthian age, and glazed coffins of slipper shape, dating from the Sassanian period, are very common on most of the city ruins. Unfortunately, sufficient attention has not yet been given to the pottery of any age.

Wood was largely used in the more wealthy ages, but it was always valuable,



A KING'S EMBROIDERIES

This illustrates the richness of the decoration on the breast of an Assyrian king, whose complete attire is seen in the other picture on this page.

as large timber had to be brought from a distance. The great halls of the palaces were all roofed with timber beams, and panels of cedar lined the walls where stone was not used. Probably palm trunks and palm leaves served for ordinary roofing, as in Egypt at present.

CLOTHING. Clothing became far more elaborate than in earlier ages, and the dominance of the more northern people brought a fuller dress into customary use. The Assyrian covered the whole body with a tunic down to the knees, and the upper classes wore a robe to the feet. Rich embroideries were usual among both Babylonians and Assyrians, and the splendour



DRESS IN ASSYRIA'S GOLDEN AGE

Rich embroideries were usual among Babylonians and Assyrians, and the splendour of Babylonian garments was spread far in other lands by trade. The royal head-dress in Assyria was practically the modern tarbush, which has again been imposed on the East by the Turk.

of Babylo ian garments was spread far in other l s by trade. The cap was either cyli l or conical, and the royal head-dress ssyria was practically the modern ta which has again been imposed on st by the Turk. Sandals were used syria, and the boot so characteris the Hittite was also brought in n the cold mountainous country. W wore a long, thin robe to the feet, cc sometimes by a tunic and a cape. Bu tar is always shown in a ribbed dres unced from top to bottom. This is th ular women's dress of the western Se ; and its use, like that of the beard he male deities, points to the strong itic influence on the appearance a h r cter of the divinities.

The arm the Assyrian was much the same in the early Sumerian days. The d helmet became rather taller, and t cover the back of the head. The , and the bow and arrow, were the main weapons as before. The old straight-sided shield was also used in Assyrian times, but was partly superseded by the round shield considerably coned. The extension of the kingdom

brought in various auxiliaries, who differed from the older Babylonians. Slingers, northern horsemen clad in leather, and mountaineers with woodman's axes, all added new branches to the army.

ART. The arts were carried to great perfection by the mixed population. Broadly speaking, the best work is that of the early age of Naramsin (3750 B.C.), and that of the late age of Ashur-bani-pal (640 B.C.). Though not so fine, yet probably the Hammurabi sculptures are the highest between the early and late schools. This would give intervals of 1,650 and 1,460 years between the successive waves of art, and about 1,450 years more to the glories of Baghdad, a period much like that found on the Mediterranean, though not coincident with it.

Sculpture 5,000 Years Ago

The finest work of Naramsin (3750 B.C.) is his great stele from Susa, now in Paris. It is remarkably pictorial in style, agreeing in this with the pieces of a limestone stele representing rows of combatants from Tello, also in Paris. The figure of the king is lithe, active, romantic in attitude, the enemies and his soldiers are full of animation. No Oriental sculpture has had quite the same life in it; and it recalls the pictorial style of Crete and the later Greek sculpture. The art of Gudea (3300 B.C.) is more cold and formal, and has not the same fine sense of proportion; it is distinctly a period of survival and not of artistic instinct, as seen, for instance, on the limestone relief in Berlin. The age of Hammurabi (2100 B.C.) shows careful portraiture, but not the spirit of the earlier age; the work is well finished, and there was no hesitation in handling materials boldly, as on the great black stele of the laws, now in Paris. There was a fine sympathetic treatment in private sculpture, as shown in the beautiful limestone head of a Sumerian in Berlin [see page 266].

Fine Later Art

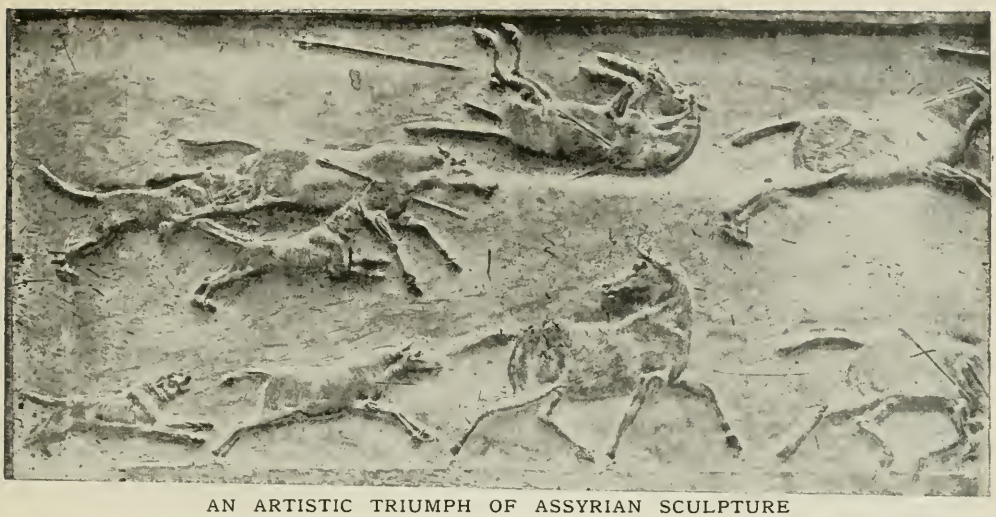
The last great age was that of the Assyrian Empire. Under Ashur-nazir-pal (885) the work is fine and severe, but without much expression. Shalmaneser III. (860) troubled more about history than about art, and his principal remains are the long records of the black obelisk and the Balawat gates, which are but clumsy in the forms. Under Sennacherib (705) there is a breadth of composition, as in the siege of Lachish, which is worthily aided by a more pictorial style, while under Ashur-bani-pal (668–626) the art reaches both grace and vigour, as in the splendid natural scenes of the wild-ass hunt, in the lion hunt, and in the garden feast with the queen.

MECHANICS. The mechanical arts were also greatly developed. The large size of the buildings, the great quantities of stone transported for the sculptures, and the immense size of many blocks—the bulls weigh nearly 50 tons each—all show that there was not only considerable skill, but also large ideals and directive ability. Layard found that three hundred men were wanted for drawing his cart bearing the great bull; and the sledge used by the Assyrians for the transport must have needed as many, or more. Long levers are represented as having been used in a very effective manner; but the placing of such great blocks exactly in the right position required far more ability than the



GUDEA LED BY A GOD

This shows the Babylonian art at 3300 B.C., inferior to the earlier style of Naramsin. The original is in Berlin Museum.



AN ARTISTIC TRIUMPH OF ASSYRIAN SCULPTURE

Under Ashur-bani-pal (668-626 B.C.) Assyrian art reached both grace and vigour, as is manifest in the splendid natural scene of the wild-ass hunt, which is here reproduced from the original in the British Museum.

mere transport. The forms of tools were much in advance of those used by the Egyptians. As far back as Naramsin, the copper axes were all well hafted, generally with rings raised round the edges of the haft hole to strengthen the band and prevent it splitting.

The forms of the iron tools are also excellent; and iron seems to have been common in Assyria at an earlier date than in any other country, probably from the tenth or twelfth century B.C. Certainly the set of Assyrian tools left at Thebes by an armourer of Esarhaddon in 670 B.C., show that the principles, and even the exact forms, of modern tools had already been reached. The chisels and rasp have not been improved since; the saw is the same as the modern Oriental pull-saw, but the teeth have not an alternate set; the centre-bits and files anticipate our forms, but have not reached the complete stage. The material of most of the edge tools is steel, showing that the hardening was then understood. The cutting of seals in hard stones was an early art, but it was well maintained, and some of the most beautiful specimens are the chalcedony cylinders such as that of Sennacherib in London. The engraving of the inscriptions also shows that cutting in hard stones was freely done on a great scale; but the writing, being entirely in straight lines, was much easier to engrave than the figures of natural objects of the Egyptian signs. Probably emery powder or copper was the means used, as in Egypt.

Modern Tools of Ancient Workers

The use of an official stamp of guarantee on uniform pieces of silver was adopted by the time of Nebuchadnezzar, but as this is two centuries later than Greek coinage it was probably copied from that. In one respect the Mesopotamian never equalled the Egyptian. The Memphite school of work had attained to a mechanical accuracy which we can scarcely gauge; their errors on large pieces of work were only a matter of thousandths of an inch. But the Mesopotamian never did a piece of passably square or regular stonework; the inequalities and skew angles are glaring, even in highly elaborated works of art. The sense of accuracy was quite untrained, and neither Semite nor Sumerian show any ability in this line. Egypt, on the contrary, started with a prehistoric race which excelled in exquisitely true handwork and dexterous flint flaking, and with the artistic sense of the dynastic people added, the combination was one of the highest that the world has seen.

The Books of Babylonia

LITERATURE. To give any adequate idea of the literature of Babylonia is far beyond our scope, and only the main classes of it can be named in this outline. These were:

1. Theology and Omens. 2. History. 3. Despatches and Correspondence. 4. Language and Translation. 5. Mathematics. 6. Astronomy. 7. Geography and Natural History. 8. Medicine.

The striking omission is that of literature in the form of tales or poetry of actual life; there seems, amid all the myriads of



HOW THE GREAT STATUES WERE MOVED: A CONTEMPORARY RECORD FROM THE MONUMENTS OF NINEVEH

The large size of the buildings of Assyria, the great quantities of stone transported for the sculptures, and the immense size of many blocks—the bulls weighing nearly 50 tons each—all show that there was not only considerable skill, but also large ideals and directive ability. Layard found that 300 men were wanted for drawing his cart bearing the great bull; and the sledge used by the Assyrians for the transport must have needed as many or more. The tools used were much in advance of those of the Egyptians.

tablets, to be nothing similar to the tales of the various periods of Egypt. We look in vain for the tales of the magicians, the romances of adventure, of love, or of history, which restore to us the living v[illegible] of Egyptian thought. The Babylonia[illegible], seve[illegible] poetic[illegible] only developed in his theology, seems to have had no play of fancy or taste for the excitement of story-telling. Similarly in the Middle Ages the "Thousand and One Nights," though often referring to Baghdad, are yet tales of entirely Egyptian source and idea.

But for his own purposes the Babylonian was well educated from a literary point of view, and, considering the complexity of his writing, he was probably better trained than any modern people except the Chinese. The hundreds of signs which he had to remember had long lost their pictorial significance, and needed an attentive memory and long training; yet not only in public documents, but also in private letters, mistakes are but rarely found. Classification of the signs, classified lists of words of Sumerian and Semitic, grammatical works, and reading books were the apparatus used. Even the peasantry and sometimes the slaves learned to write, and there was hardly more need of a professional scribe than there is in England to-day. But this general eucation belonged to the Sumerian stock, and was much diminished where the Semite was in the majority, so that in Assyria only the upper classes could write, and nail-marks of contracting parties are common. The feeling for literature kept the names of great writers in remembrance, and the authors of the main religious pieces, such as the Epic of Gilgames, are still known. The Egyptian, on the other hand, has not preserved the name of a single author; even Pentaur was probably only a scribe. The honouring of literature led to the Assyrian kings amassing great libraries, and to the princes becoming librarians and secretaries. The copying of ancient tablets for the new libraries was a large business, carefully planned; and the scribe was required to exactly state where his original was defective and what uncertainties existed in the reading. Even private persons sought to obtain favour by presenting copies of works to the temple libraries.

Wonderful Training of Babylonians

Of the classes of writings, the religious works are noticed later; the historical writings are mainly Assyrian, recording the constant wars with other lands, and the tribute and booty brought from them. That there was a complete State history is shown by the ready allusions to the time since certain events had happened. Ashur-bani-pal recounts 1,635 years since the Elamite king had carried off an image. Nabonidus searched for and found the tablet of Naramsin, which he says had not been seen for 3,200 years; he recites that there were 800 years from his time to Shagarakti-buriash, and 700 years from Burnaburiash to Hammurabi. These references show that we may hope to recover a complete State history from Assyria, as we may hope yet for a complete historical papyrus from Egypt.

Shall We Find an Assyrian State History?

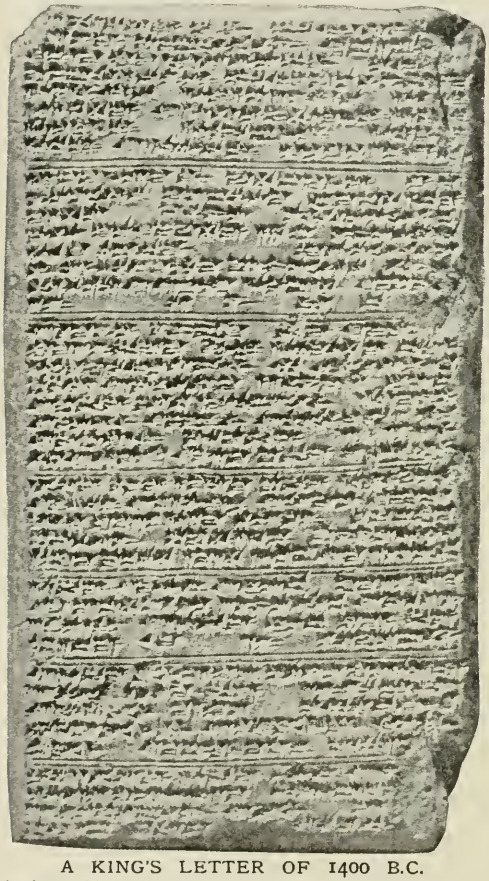
The despatches and correspondence give full light on detail of politics and affairs, showing the conditions of various countries; and where a sufficient number have been preserved together it is possible to build up a continuous history of a period, as in the case of the Tellal-Amarna letters. The yearly annals of a reign belong more to the historical division, and such records of Sennacherib, Ashur-bani-pal, and others are of the highest value. The private letters give a full view of the current life; and the business documents, especially receipts, are the commonest of all records, showing the trade, the law, and the business of the country in all its fulness.

The tablets dealing with the Sumerian and Semitic languages together, and the translations from one to the other, we have noted already. The mathematical tablets are multiplication tables, lists of multiples of measures, tables of squares and cubes, and plans with measurements along the sides, which show the practical use of the science. The astronomical records were already tabulated in the time of the early Semitic Empire, Sargon having compiled for his library a work in seventy-two books, the title of which is rendered "The Observations of Bel." The purpose of this was astrological, like the great mass of short tablets reporting observations of a later date. But the inquiries involved a considerable familiarity with astronomical movements, and a mass of records which became of great value to the student. The astronomical tablets of the Seleucid

Beginning of Astronomy

period are of special value, as they often contain valuable historical matter.

Law. In the domain of law the Babylonian had early formulated a code from the actual working of decisions. Case-made law was his basis, as in most countries, and abstracts of important cases were carefully preserved as precedents. No torture was used upon witnesses, and ample investigation of the right of a case



A KING'S LETTER OF 1400 B.C.

A clay tablet letter from Tushratta, King of Mitani, to Amenophis III., King of Egypt, announcing the despatch of valuable gifts and begging Amenophis to send him a large quantity of gold as payment for expenses incurred by his grandfather in sending gifts to the King of Egypt, and also as a gift in return for his daughter, a princess of Mitani, whom Amenophis had married.

seems to have been usual, with full cross-examination. High penalties were stipulated for the infringement of sales or contracts. The status of women was equal to that of men in the Sumerian, but became inferior in the Semitic law. Slavery was rather an assignation of labour than a control of the person, as a slave family could not be separated. Slaves could hold property, own other slaves, give witness, and were sometimes well educated. The family union was strong, as inherited land could not be sold without assent of relatives, and boys and girls alike inherited intestate property.

The detail of the laws form a long study, but we may here note the main sections of the great code of Hammurabi, showing the scope of the laws, and stating the number of enactments.

Witchcraft 2	Marriage property 19
Legal falsehood 3	Women 32
Theft 3	Votaries property 7
Loss 5	Adoption 10
Child and slave stealing 7	Assault 20
	Doctors 13
Robbery 5	Builders 6
Royal messengers and officers 16	Shipping 7
	Cattle 12
Agriculture 24	Hire 25, and
Accounts 8	Slaves 5
Licensed traders 6	Distraint & deposit 13

Thus the whole scope of an agricultural and commercial community was well safeguarded, and little doubt left as to general principles and penalties. All this must have been the product of innumerable cases and difficulties for two or three thousand years, before such a complete code was set up.

History in Mythology. The religion has usually occupied a large part of the attention and interest given to Mesopotamia; it is comparatively well known owing to the quantity of documents and representations. Here we need only mention such points as bear on the general civilisation. We have already noticed how the purely Sumerian Shamanism, or belief in the spirit of every object, which needed to be appeased, had been tinctured by the worship of personal deities of the Semitic neighbours, and how this influence was shown by borrowing the Semitic beard for the gods and flounced robe for the goddesses, and occasionally for the gods. Thus the Semite was the missionary of theism as against animism.

On the other hand, the civilisation of Babylonia is expressly stated to have been given by Ea, or Oannes, who rose from the sea of the Persian Gulf; he passed the day among men, and taught letters and sciences and arts—the building of cities and temples, and the use of laws and geometry. Also he showed the uses of seeds and fruits, and softened and humanised the people, who had lived in a lawless manner like wild beasts. This full ascription of civilisation to sea immigrants shows that it

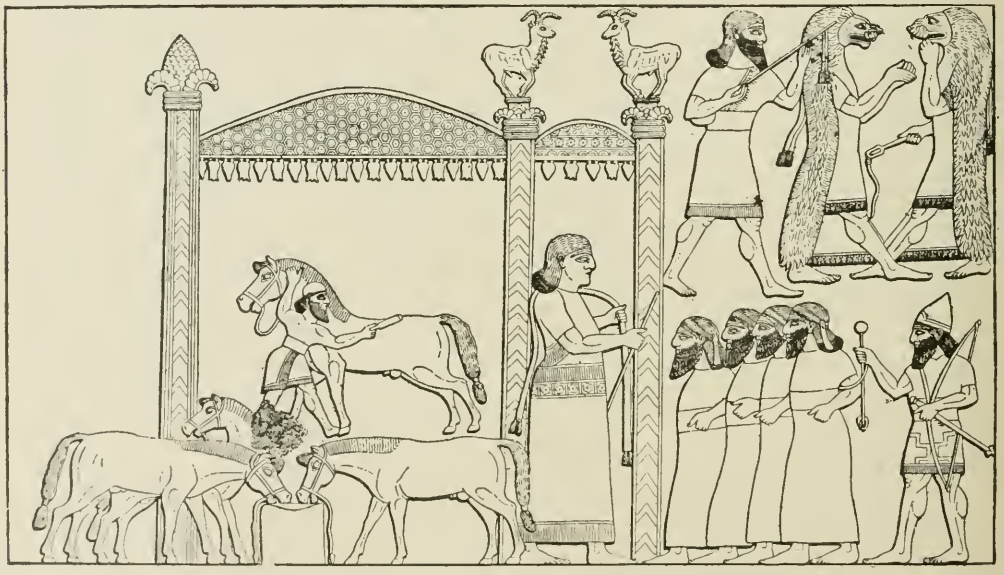


SIR A. H. LAYARD'S EXCAVATORS LOWERING ONE OF THE GREAT WINGED BULLS FOUND IN NINEVEH
These bulls weighed fifty tons each. Layard found that three hundred men were necessary to pull the cart on which the bulls were placed

cannot be set down as an indigenous growth, or as due to the Sumerian, or still less to the Semite. The date of this movement is roughly indicated by Ea, belonging to the city of Eridu; and 5000 B.C. is the earliest date at which we can suppose the ground of that city to have been dry land. Such must be taken as the extreme limit of the early civilisation, and what we find of the early kings of about 4700 B.C. is the first efficient rise of monumental history in the land. All this is parallel to the early civilisation in Egypt. That also came in apparently from the Red Sea at about 5800 B.C., as the civilising movement which changed the prehistoric age to the dynastic. And it came only a few centuries earlier than the mission of Ea. It may be possible that there is one common source of a seafaring people for both civilisations, and, if so, we might look to Hadhramot as being in the most likely common centre. At least, it is always convenient to explain the unknown by the unknown.

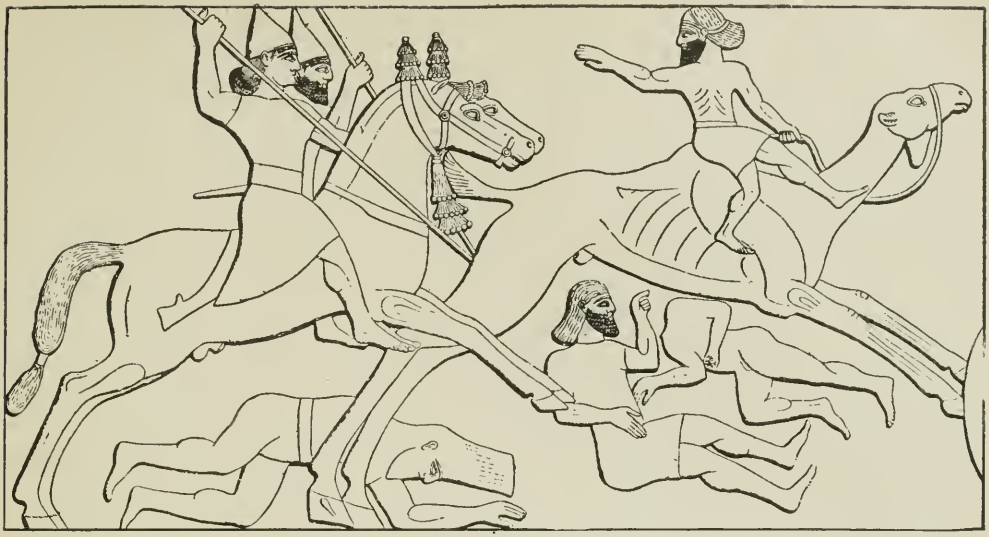


The nature gods of Apsu and Tiamat, the ocean and the chaos, described in the first tablet of the Creation series, belong to the primitive Sumerian. "The waters of these mingled in union, and no fields were embanked, no islands were seen; when the gods had not come forth, not one; when they neither had being nor destinies." And afterward "Evil they plotted against



A CAMP SCENE IN THE DAYS OF NINEVEH'S POWER

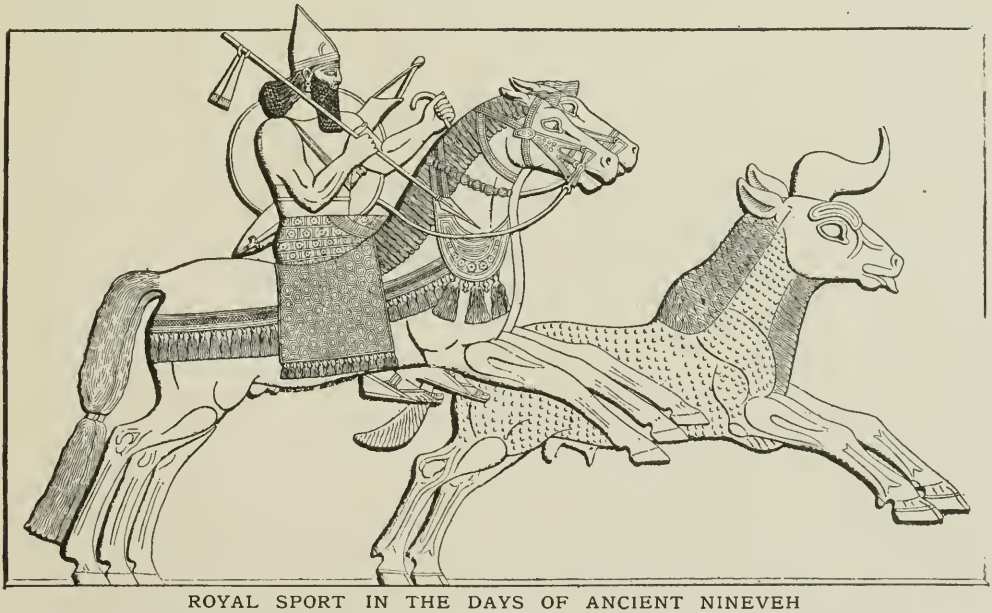
The interior of a castle, in ... d by a kind ... ground-plan ... ch towers and battlements, is divided into four compartments. In each is ... oup of figures either engage... in domestic occupations or in preparations for a religious ceremony. The p... lion is suppor... l by columns, probably of painted wood, and the canopy is adorned with a fringe of alte... ate flowers an... buds, like the usual Egyptian border. Beneath the canopy is a groom cleaning a horse with a curry-comb. A eunuch at the entrance is receiving four prisoners. Above are two mummers dressed in the skins of lions, while a figure with a staff appears to be the keeper of these monsters.



A CHASE IN THE DESERT, RECORDED ON THE MONUMENTS OF NINEVEH

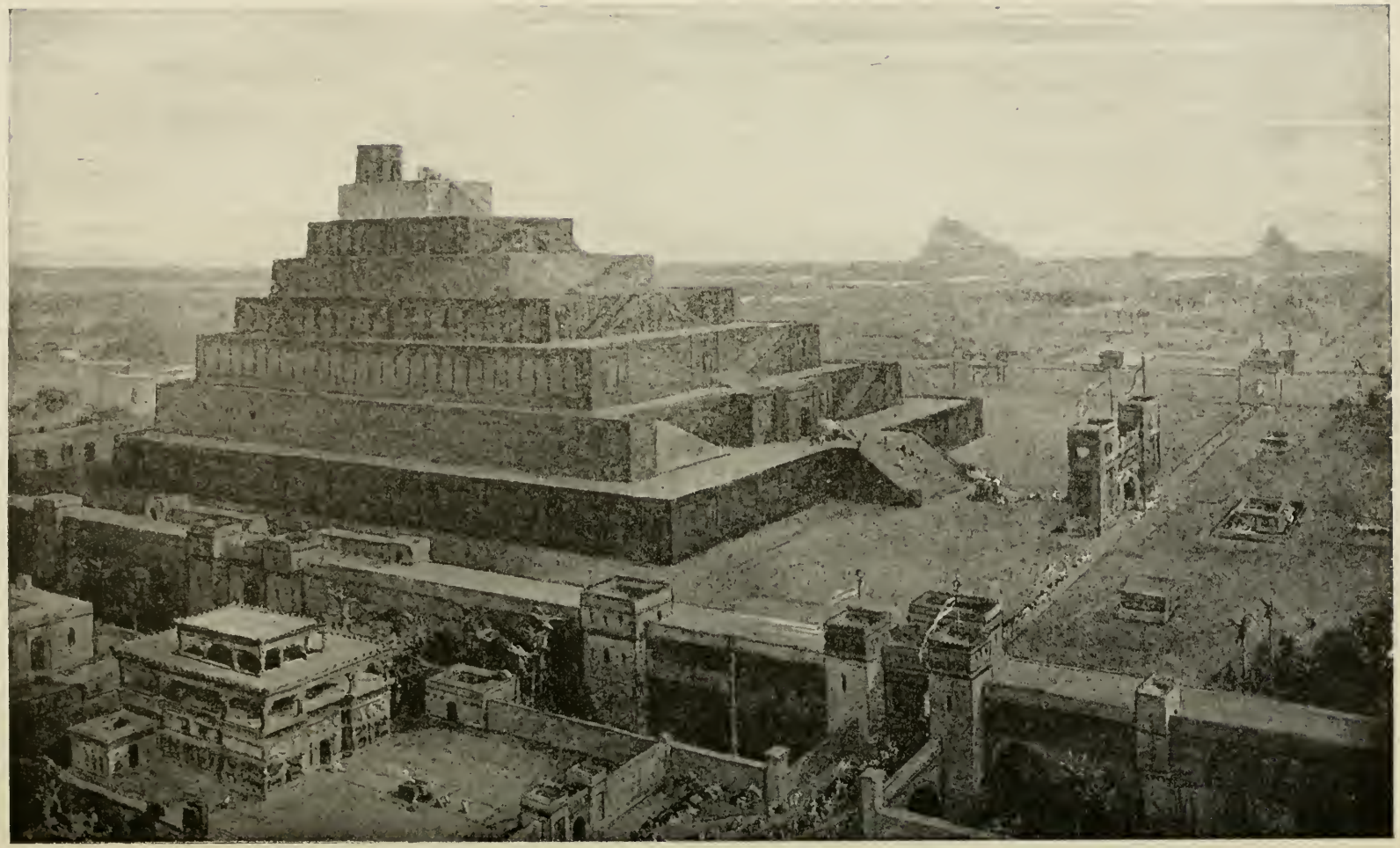
The series of which this bas-relief formed a part appears to have recorded the conquest by the Assyrians of an Arab tribe or nation who made use of the camel in war as a beast of burden. This sculpture belongs to a later period than the bas-relief from the North-West Palace at Nineveh reproduced below.

the great gods." After an attempt of Anshar (perhaps the same as the Egyptian Anher, the sky god) to subdue Tiamat (tablet 2), Marduk, the sun god, gains the victory; and in tablets 3 and 4, the supremacy of Marduk is finally confirmed by all the gods. In this we seem to have the echoes of a tribal history as in the Egyptian theology. The Shamanistic worship of a confused host of warring and malignant spirits, is at last subdued by the worshippers of personal gods under Semitic influence, and of these the people of the sun god take in the end the leading place. All of these changes were, however, long before the political domination of the Semite, which began about 3800 B.C., with Sargon.



ROYAL SPORT IN THE DAYS OF ANCIENT NINEVEH

This bas-relief probably formed part of a subject representing the King of Nineveh in his chariot hunting the wild bull. The warrior rides on one horse and leads a second, richly caparisoned, for the use of the monarch. Numerous small marks on the body of the animal probably denote long and shaggy hair.



BABYLON: THE WONDER CITY OF ANCIENT CIVILISATION AT THE HEIGHT OF ITS POWER



NIMRUD: ALL THAT IS LEFT OF ONE OF THE WONDER CITIES OF ANCIENT BABYLONIA

A view of Birs Nimrud, the traditional site of the Tower of Babel. On the plain below are the silent ruins of the ancient city, once filled with a teeming population.



A VIEW OF HILLAH, THE MODERN BABYLON

We have now reviewed the questions of the rise of civilisation, as apart from the ordinary history of the countries, which is dealt with in its proper place in this work. Though it is difficult, and rather misleading, to look at civilisation and the political history apart, yet, so much has come to light in recent years to clear our view of the origins of culture that we may be allowed to focus our attention on that view of man, apart from his better known history. We seem at last to have reached back to a definite beginning of arts and capacities on both the Nile and the Euphrates, and to have touched a condition of things that seems to point in both lands to some external source of a yet pre-existing culture, which yet has to be traced. I am happy to add that one of our greatest Babylonian scholars, Dr. Pinches, concurs in the view of his subject which is here presented. W. M. FLINDERS PETRIE



THE EXILES IN BABYLON

"By the rivers of Babylon there we sat down; yea, we wept." From the painting by Bendemann.

THE RISE OF CIVILISATION
IN EUROPE
By DAVID GEORGE HOGARTH, M.A.

"OUT of the East came Light" has been the text on which all great historians of civilisation have preached, from the authors of the Mosaic literature down through Greek and Roman times to our own. Hebrew writers have looked back to Mesopotamia; Greek writers to Egypt; Roman writers to Greece; writers of Western and Northern Europe and the New World to Rome, Greece, and Palestine. Their belief is justified in so far as it is based on two great facts. Man first found in the warm, alluvial valleys of Southern Asia and North-Eastern Africa the conditions of climate and soil most favourable to his upward progress from the savage state; and from these regions, so soon as with increase of numbers he was moved to migrate, his steps were turned by the geographical conditions surrounding his early homes, in a general way, westward. He knew not yet how to cross broad seas; deserts, sandy steppes, high mountains and tropical forests and swamps were equally deterrent. The Polar ice-sheet, which had extended in Pleistocene times to the Caspian, Black Sea, and Danube basins, and still lay, in the dawn of human civilisation, far south of its present limits, probably rendered, with its wide fringe of impassable moraine, forest, and tundra country, all the lands included in the present Empire of Russia singularly inhospitable. Whoso looks at the map of the Western Hemisphere, bearing these facts in mind, will see at once that the line of least resistance, and, indeed, the only possible line, led the men of the great sub-tropic river valleys towards and along the Mediterranean coasts.

"Out of the East came Light"

In so far, therefore, as European civilisation is a state of things due to influences from without, it is due to the East; but that is very far from the whole explanation of its origin. The impulse to rise above savagery has not always—not, indeed, usually—come to peoples from without; and probably in primitive time, when communications were slow and difficult to a degree which we can hardly realise, the origin of local culture was seldom or never to be accounted for thus. In modern days there have been obvious instances to the contrary; but even now it remains to be seen how far civilisations originated among absolutely barbarous peoples by contact with higher races are real and living growths. Examples of the modification and possible elevation of ancient indigenous societies by incoming aliens, such as have been seen in Mexico or Peru, India or Japan, Egypt or Barbary, are not in point; for in these cases local civilisations certainly existed long before the foreign influence. We must look to the history of the relations of white and negro, or other savage, races in the homes of the latter, and the results of such inquiries are far from conclusive. Does civilisation so originated grow and thrive? Do even the races thus civilised themselves any longer thrive and grow? Our antipodean colonies, and the story of the native races of North America, if there were no other instances, would not admit a categorical affirmative. Nay, rather, the evidence so far available tends to discount the permanence of transferred civilisation, and to throw doubt on the continued vitality of races so civilised.

Civilisation from Without

It is necessary to raise this question at the outset of the present essay because it has been too often assumed, both implicitly and explicitly, by historians of our civilisation, that all the cultural development of Central, Western, and Northern Europe has been due to alien influence, exerted from the south and south-east, and mainly by the agency of the Greek, Græco-Roman, and Græco-Romano-Semitic (the Christian) systems. Maine's famous dictum that "Nothing moves in the world which is not Greek in origin" has long dominated our thoughts. Yet that magnificent generalisation is contrary

The Escape from Savagery

not only to inherent probability, but to known fact. Escape from the savage state, as Buckle showed, depends in the first place on the existence of such conditions of geographical environment as favour the accumulation of wealth and the development of a leisured class—that is, such as conduce to the production of a good deal more than the minimum necessary for life. It can, therefore, have taken place wherever man found comparatively genial climate and remunerative soil, and, in process of time, made for himself, by clearing forests or draining swamps, an arable area which would feed him and his more abundantly than was absolutely necessary.

Conditions Essential for Civilisation

Where these conditions were presumably present it is unreasonable to suppose that the beginnings of civilisation were deferred age after age, until late in time some stimulus chanced to be imparted by an alien race or races which had, after all, advanced towards their own civilisation, albeit earlier, through the operation of similar conditions elsewhere. In the European areas inhabited by the Celtic and Germanic peoples, for instance, long before we have the slightest reason to believe that these can have come into intimate relation with the civilisations of the South and East, both climate and soil were unquestionably favourable, and local civilisations cannot but have been originated independently. As has been well said, "Man everywhere has the same humble beginnings"; and, up to a certain point, which is found to be, in fact, far later than the inception of some kind of culture, he will satisfy his primitive needs and desires in very much the same ways.

Under certain conditions, known to have arisen independently in many different regions of the earth, articles of luxury and art, irrefragable witnesses to incipient civilisation, begin to be produced spontaneously. To what remote periods have not cave deposits thrown back the history of artistic effort in the valleys of Gaul? And what credit, in reason, can be given to Greece, or even to Rome, for the elaborate social order of the Teutonic tribes, which was of ancient standing when first the Romans penetrated beyond the Danube and Rhine? So well rooted in the soil, so potent and so widely diffused were the Teutonic and Celtic social systems, that in the history of our actual civilisation they are factors as worthy of consideration as the influences of Rome, Greece, or Palestine. If Græco-Roman Christianity came greatly to modify them in the end, they had, perhaps, ere that, modified Christianity itself hardly less; and the social superiority of the northern and western adherents of the now dominant religion is probably as much due to character and habits developed before ever its creed was formulated, as the dominance of the Turkish peoples in the Islamic system is undoubtedly due to social characteristics evolved in the oases and steppe-lands of Central Asia far back in the "Times of Ignorance."

Spontaneous Civilisation in Europe

Let it, therefore, be understood that in the following pages it is not necessarily the whole origin of European civilisation that is being set forth, but the modification and heightening of probably pre-existent European culture by the first influences of the Nearer East which can be supposed to have reached it. Of these influences the effect is to some extent a matter of inference only. We cannot always, or, indeed, often, point with any assurance to actual results of their action. In great part we must still be content with little more than a demonstration that directly along certain lines of communication, or indirectly through certain intermediaries, the civilisations of the South could, or did, come into relation with European areas at an early age.

The Two Great Sea Routes

The sea routes which were most likely to be used in ruder ages by Levantine mariners, after leaving the Nile estuaries or the Syrian ports—which, as a matter of fact, are known to have been most used—are: that which followed the littoral of Asia Minor to Rhodes, whence it bifurcated, to Crete on the one hand, and to the Ægean isles and coasts on the other; or that striking across the narrow strait to Cyprus, and thence by way of Rhodes, or directly, to Crete. In connection with both these routes, the importance of Crete and Rhodes, and especially the former, must be obvious. Thence the Cyrenean and Carthaginian projections of Africa were reached with greater ease than by way of the littoral to west of Egypt, which, for some hundreds of miles, is desert, reef-girt, almost harbourless, and pitilessly vexed by an on-shore wind. From Carthage, Sicily and the Italian



THE GREAT SEA ROUTES OF ANCIENT CIVILISATION

Along the routes marked in this map lay the course of Ægean and Phœnician civilisation. The importance of Crete and Rhodes in the spreading of civilisation is clearly seen; they may be called the "half-way houses" between Mesopotamian culture, with its seat in the valley of the Euphrates, and Egyptian culture, in the valley of the Nile.

peninsula were readily accessible, or the Gibraltar strait and the Iberian shores could be made after coasting a littoral much kinder to navigation than that between Egypt and the western bight of the Syrtis.

The Two Great Land Routes

The land routes in chief were also two. The Nile valley, closed by desert on the western side, had comparatively easy access to the great natural road which, leading northwards through Syria, passes at first along the Palestinian littoral, and then through the central cleft between the Lebanons to the Orontes valley. Mesopotamian traders, following up the Euphrates till they had left the desert part of its course behind them, fell into this same road in the region of Aleppo and Antioch. Thence by the easy passes which turn the southern end of Mount Amanus, the combined caravans reached Tarsus, penetrated Taurus by the gap of the Cilician Gates, and found themselves on the plateau of Asia Minor with a choice of easy routes leading either to the rich western littoral, or the north-western straits, and from any and every point offering safe passage to South-eastern Europe. This was the only land route for Egyptian civilisation. But the Mesopotamian had an alternative one, leading by way of the upper Tigris valley to the north of Taurus and the Cappadocian plateau, whence it descended the Sangarius and debouched, like the first route, on either the north-western or the western coast of Anatolia.

The Royal Road up into Asia

In speaking of such land routes, we do not, of course, mean to imply the existence of any made road, nor even of a single track. When most definite, they probably resembled the Syrian Pilgrim Way—a skein of separate paths now spreading widely, now running into and across one another; and doubtless the early tracks diverged far more than this, and making great elbows, followed now one valley, now another, to meet again only after many days. One of the great lines from Mesopotamia to the western Anatolian coast, that described last in our enumeration, came to be defined more strictly than the rest, perhaps by the Kings of Nineveh and their "Hittite" rivals and allies in Cappadocia, and was known in the Persian era to the Greeks as the Royal Road "of all who go up into Asia." But at the much earlier time with which we are most concerned, the influences of the East did not rush westward torrent-wise in one bed, but soaked slowly, finding a way now here, now there, in one general westward direction, and sending offshoots far out to right and left of the main streams.



LAND ROUTES OF ANCIENT CIVILISATION

The great natural roads along which lay the path of Egyptian and Mesopotamian culture are marked in white lines on this map. A study of the map, with a careful reading of this chapter, will make clear the way in which civilisation spread in Egypt and Babylon. It is along these lines that there are found evidences of the influence exerted upon Europe by the civilisation of the valley of the Nile and the Euphrates.

It has been said that there is evidence of the routes just indicated having been, in fact, those most used. It is upon these lines, and no others, that we find certain remarkable focuses of early culture disposed as half-way houses between the Mesopotamian and Egyptian civilisations on the one hand, and continental Europe on the other. These are, in relation to the sea routes, first, the prehistoric Ægean civilisation, focused from the first in Crete, but extended to all isles and peninsulas of South-eastern Europe from Cyprus to Sardinia and Spain; and, secondly, the Phœnician, originated on the Syrian coast, but focused also at a later time at a second point much farther west—namely, on that Carthaginian projection, whence lay easy sea-ways to Sicily and Italy and all the western seas. Hard by the Egyptian land route lay this same Phœnician society; while all about its point of junction with the Euphrates road, on both its continuations northwestward, and on the northern road from Mesopotamia so soon as this had passed Euphrates, was established the singular but as yet little understood civilisation which we call Hittite. How early we may assume the latter's existence in North Syria is still doubtful; but since the discoveries of Winckler at Boghaz Keui, there is little question that it was focused in prehistoric time in Northern Cappadocia, whence its influence seems to have radiated southward to the confines of Palestine, and westward to Lydia and almost the shore of the Ægean Sea. It is to this North Cappadocian region that the Tigris route from Assyria and Babylonia, which was afterwards the Persian "Royal Road," tended. Among these civilisations the most important for our present purpose is the Ægean, because its geographical area touched at some point all the westward roads, whether by sea or land; and, moreover, because it is the one which actual evidence both dates from the remotest antiquity and most clearly proves to have been operative on Europe, especially on the most expansive of its early cultures, the Hellenic. The recent exploration of Crete, due in the main to Messrs. Arthur Evans and Federico Halbherr, has enhanced enormously the significance of the civilisation revealed to the modern world at Hissarlik and Mycenæ by the faith and fervour of Henry Schliemann.

Half-way Houses of Civilisation

We are now assured of certain facts of much moment to our inquiry. Firstly, that this civilisation was developed originally from its rudest beginnings within the Ægean area itself. This is proved by evidence of the uninterrupted evolution of fabrics and decoration, especially in ceramic ware, produced at Cnossus from the dawn of the historic Hellenic period right back to Neolithic time. At various points in this long retrocession we can place the Cnossian culture in synchronic relation with the Egyptian by the presence both of Egyptian objects in the Ægean strata, and Ægean in the Egyptian. These points correspond with the highest developments respectively of the New, Middle, and Old Pharaonic Empires—moments at which we should naturally expect to find evidence of international communication. The earliest point indicated by these synchronisms lies possibly as far back as the First Dynasty, if certain vases, exported apparently from the Ægean as vehicles for colouring matter, and found by Dr. Petrie at Abydos, are accepted as of the remote date to which their discoverer attributed them; but in any case the contemporaneity of some part of the Old Empire period with the Ægean civilisation is assured, and that, moreover, when the latter was already far advanced beyond its rudest origins, as represented by the contents of the thick strata of yellow clay which underlie the earliest structures at Cnossus.

Far-back Evidences of Culture

Thus is the indigenous origin of Ægean civilisation assured. So also is the independence of its after development. The typical Cretan pottery, known as the "Kamares" style and lineally descended from Neolithic ware, which attained, about the acme of the Pharaonic Middle Empire a perfection both of fabric and ornament worthy of the highest ceramic products of any age, remained absolutely distinct. The same independence characterises a later ceramic product of the Ægean, a glazed ware with monochrome decoration, which went into Egypt abundantly under the Eighteenth Dynasty, and especially when Amenhotep IV., "Khuenaten," was reigning in his new capital at Tell-el-Amarna. Nor is Ægean art distinctive only in its humbler products. The frescoes, the

The Ægean Civilisation is Native



THESEION TEMPLE, ATHENS: DORIC ORDER OF ARCHITECTURE
The perfection of the Hellenic style, derived from Ægean architecture. 5th century B.C.

Hellenic"; also, in architectural construction and the organisation of domestic comfort, as displayed in the palaces at Cnossus and Phæstus, with their superposed stories, their broad stairways of many flights, their rich ornament, their arrangements for admitting air and light, and their astonishing systems of sanitation and drainage. The written documents found, though still undeciphered, plainly attest an advanced knowledge of account-keeping and correspondence. The frescoes and gem scenes, as well as many surviving objects of luxury, attest the existence of a leisured and pleasure-loving class; and, lastly, the tribute-tallies of Cnossus support the inference which is legitimately drawn from the uniformity of certain material objects all over the Ægean area at certain periods

plaster reliefs, the chased work in precious metals, the ivory carvings, and the gem intaglios of the Ægean area, of which Sir Charles Newton said thirty years ago that they were not to be confounded with products of any other glyptic art, show the development and retention of an individual naturalistic style—a style which reacted on the fresco paintings of Egypt itself under Khuenaten. Finally, to clinch the proof of its independence with the strongest possible argument, the Ægean civilisation, as soon as it became articulate, evolved for itself, in Crete at any rate, a system of writing, displayed to us on some thousands of surviving clay documents, which was purely its own, and cannot be interpreted by comparison with any other known script.

Secondly, it is now known that this civilisation, of remote indigenous origin and independent development, reached a very high point of achievement in many respects which afford the best-known tests of culture—namely, in its artistic products, extant examples of which offer ample evidence of wonderfully close study of natural forms, of mastery of decorative principles and their execution, and of a sort of idealistic quality, which has been rightly called "a premonition of the later



TEMPLE OF WINGLESS VICTORY: IONIC ORDER
The perfection of the second Hellenic style, refined from the Doric, probably in the first place by Asiatic Greeks. Fifth century B.C.

—notably that contemporaneous with the earlier part of the Eighteenth Egyptian Dynasty—and also from the wide range of certain place-names, that there was an extensive imperial organisation. The centre of this empire, as well as the original focus of the civilisation, was almost beyond question in Crete. The prejudice in favour of other focuses raised by the priority of Ægean discoveries elsewhere, especially those made in the Argolid, has been greatly weakened by demonstration of the superior catholicity and quality of Cretan culture, and by recognition of the failure of Mycenæ to offer evidence of anything like the same antiquity. And no more need be said here to counteract it than that, if Buckle's statement of the climatic and geographical conditions necessary to the first development and upward progress of culture be sound, those conditions were never present in plenitude anywhere in the Ægean area except in Crete. There are found in the most conspicuous degree the combination of these geographical features—large tracts of fertile and deep lowland soil; mountains so situated as to cause abundant precipitation, and so high as to store snow against the early summer; absence of both swamps and desert areas; and a climate not prone to extremes.

The Contact of Early Civilisations

Like all other high civilisations the Ægean both borrowed and lent. Since its debts could be contracted only with contemporary cultures as high as its own, they were owed mainly to Egypt and Babylonia, while its loans went out chiefly to lower civilisations further removed than itself from the eastern centres, those, namely, of the European continent. As regards Egypt, something has been said already of its intercourse with the Ægean in all ages of the latter's prehistoric period. The evidence of that intercourse, known even before the exploration of Crete, was fairly abundant, though limited almost entirely to later ages of Ægean culture, often called particularly "Mycenæan." The "pre-Cretan" case was set forth very concisely in a paper read before the Royal Society of Literature in 1897 by Professor Flinders Petrie, who enumerated the objects of Egyptian fabric or style found on Ægean sites, notably at Mycenæ, and in Cyprus and Rhodes; and of objects of Ægean style or fabric found in Egypt, notably at Thebes, Memphis and Tell-el-Amarna, and in the Fayum. One word of warning only may be added—that the occurrence of such imported objects, especially if they be of the amulet class, on a site of a certain date does not necessarily imply exact contemporaneity with the period at which the objects were actually produced; for they may well have been carried hither and thither in the stream of trade for some time ere coming to rest, and been long preserved afterwards. Some of the Cypriote and Rhodian tombs, for example, in which scarabs and other Egyptian objects of the Eighteenth Pharaonic Dynasty have been found, are probably considerably later than that dynasty.

What Crete has Taught us

Crete has largely reinforced this evidence, not only by throwing it back to a much earlier time than that of the Eighteenth Dynasty, but by proving that in its later periods Ægean art had come to be considerably modified, both in forms and in motives and treatment of decoration, by the art of Egypt. We have then to do, not merely with mutually imported objects, but, much more than was previously understood, with the mutual action of influences—the strongest possible proof of close intercourse. On the Ægean side, our sole concern at present, are now found scenes represented in fresco-painting or metal-work — for example, the mural scene with a river and palms at Cnossus, and the well-known cat-hunting scene inlaid on a Mycenæan poniard—and also decorative motives which are of obvious Egyptian parentage. Other motives proclaim their alien origin by more or less mistaken treatment. The best instance in point is the use made of the lotus motive in Greece and the isles, where the flower was never domiciled.

For influences of the Mesopotamian civilisation we have to look in the main to the early civilisations of Syria and Asia Minor; but evidence is not wholly wanting on Ægean sites. A Babylonian cylinder came to light at Cnossus; the fashion of dress, especially female, as shown in Ægean frescoes and gems, is very like the Babylonian, from whatever primitive garments it had been developed; and in other respects also the intaglio class of Ægean art products shows at least as much Mesopotamian as Egyptian influence. It has borrowed the decoration of both cylinders and scarabs; but it proves

Influence of Egypt and Mesopotamia



PALLAS ATHENA, THE MAIDEN GODDESS OF ATHENS

One of the chief glories of the art of ancient Greece left to the modern world. Athena was the goddess and protectress of Athens, and her statue stood at the height of the Acropolis, dominating the city.



THE SUPREME MONUMENT OF ANCIENT GREECE LEFT TO THE MODERN WORLD

The Venus of Milo, one of the noblest examples of Greek art, and one of the most famous statues extant. Found at Milo, in Crete, about 100 B.C., and now in the Louvre, Paris.

its essential independence all the time by never adopting the forms of either of those characteristic alien vehicles of glyptic art.

Lastly, in the most important of all aspects of early civilisation—the religious—we now know that the Ægean approximated very closely to the old civilisations to south and east of it. The main idea of its cult was that which seems to have been the oldest and the most dominant in such cults—namely, the worship of the reproductive force of Nature. This idea was embodied, as soon as divinities were imagined in human shape, in feminine form, the desired relation of divinity to humanity being expressed by the addition of a son-consort. How far other features of this cult, common to the south-eastern lands—such as the descent of the son to the human race, his periodical death at the hands of the latter, and his joyful resurrection—were present, we do not yet know. It would probably be false to ascribe the presence of this cult idea in Ægean civilisation to any foreign influence, for it seems to be a necessary expression of the religious sense of many peoples, and is as likely to have been as indigenous in the case of Rhea and Zeus (to give the Divine pair their possible Ægean names) as in those of Isis and Osiris, or Ashtaroth and Tammuz-Adon. But we may note first that here was a vital bond of affinity between the Ægean folk and their mainland neighbours on east and south, and second, that long before historic Hellenic times the former had arrived at that essential condition of progressive civilisation, an anthropomorphic conception of divinity.

Religious Ideas of Early Times

Enough has now been said to show that Ægean civilisation was both a broad channel through which influences of Asiatic and Egyptian culture could and did flow, and also in itself of such importance as to be likely to exert influence on nascent civilisation in Europe. To see whether it did so, we look first to the culture which succeeded it in its own area, the Hellenic culture of the historic age, about whose action, exerted indirectly on all subsequent civilisation, there is no possible doubt. And at the outset stress must be laid on the fact that we are dealing, in respect of the two civilisations in question, with one and the same geographical area. There is here no question of alien influences dependent on short or long communications by sea or land. The Hellenic race, if indeed to be distinguished from all elements in the earlier Ægean, came into the very domain of the latter, and experienced by actual contact the full force of the pre-existent culture. This being so, the probability of heavy debts having been contracted by the later culture to the earlier is enormous; and it becomes all but certainty when the few facts which we know about the early history of the Hellenic peoples proper come to be considered in the light of ascertained general laws governing the relations of intermingled races.

The Greek Debt to Ægean Civilisation

It is clear that the Hellenic tradition of a great descent of peoples from the north into mainland Greece and the western isles, about 1000 B.C., enshrines substantial fact. These peoples, possessed of iron weapons, were superior to the Ægean folk in war, but evidently inferior in the softer social arts. The Greeks called them Dorians, a name afterwards associated with the most distinctive, but the least cultivated, of the historic races of the peninsula—a race, however, possessed in its full form of the conception of the city-state; which implied the subordination of the individual to the corporate body, and was the chief social message to be taught thereafter by the Greek to the world.

Emerging of Historic Hellenism

Without calling these invaders by any one name, or supposing Northern folk to have made then their first appearance in the Ægean area, we may safely see in this Greek tradition the record of a cataclysmic change out of which historic Hellenism was to issue at the last. In proof of the invader's inferiority in the useful arts we have the undoubted fact that the command of the Greek seas, formerly held by Cretans and other Ægean folk, passed for some centuries into Semitic hands—the hands of those Sidonian Phœnicians whose coming, but as yet incomplete, "thalassocracy," is reflected in the most important of contemporary documents, the Homeric lays, and, under the lead of the Tyrians, was to grow greater yet. To illustrate their inferiority in the luxurious arts we have the dry, uninventive style of artistic decoration known as the "Geometric," which also lasted for some centuries. It is evident that the newcomers were conquering soldiers, who destroyed, but could not of their own virtue create.



A GREAT CITY OF ANCIENT CIVILISATION: THE BUILDING OF CARTHAGE BY DIDO
From the painting by Turner, in the National Gallery.

Now, the course of events after all such conquests, if permanent but not exterminative, is the same. The rude military invaders, finding themselves deficient in woman-folk, take not only slaves but wives from the civilised people of the soil. The resultant children tend more and more, as time goes on, to be influenced by their native mothers. In them previous culture begins to revive, and ere many generations are past, so completely is the new race assimilated by the old that the language in general use is that not of the conquerors but of the conquered.

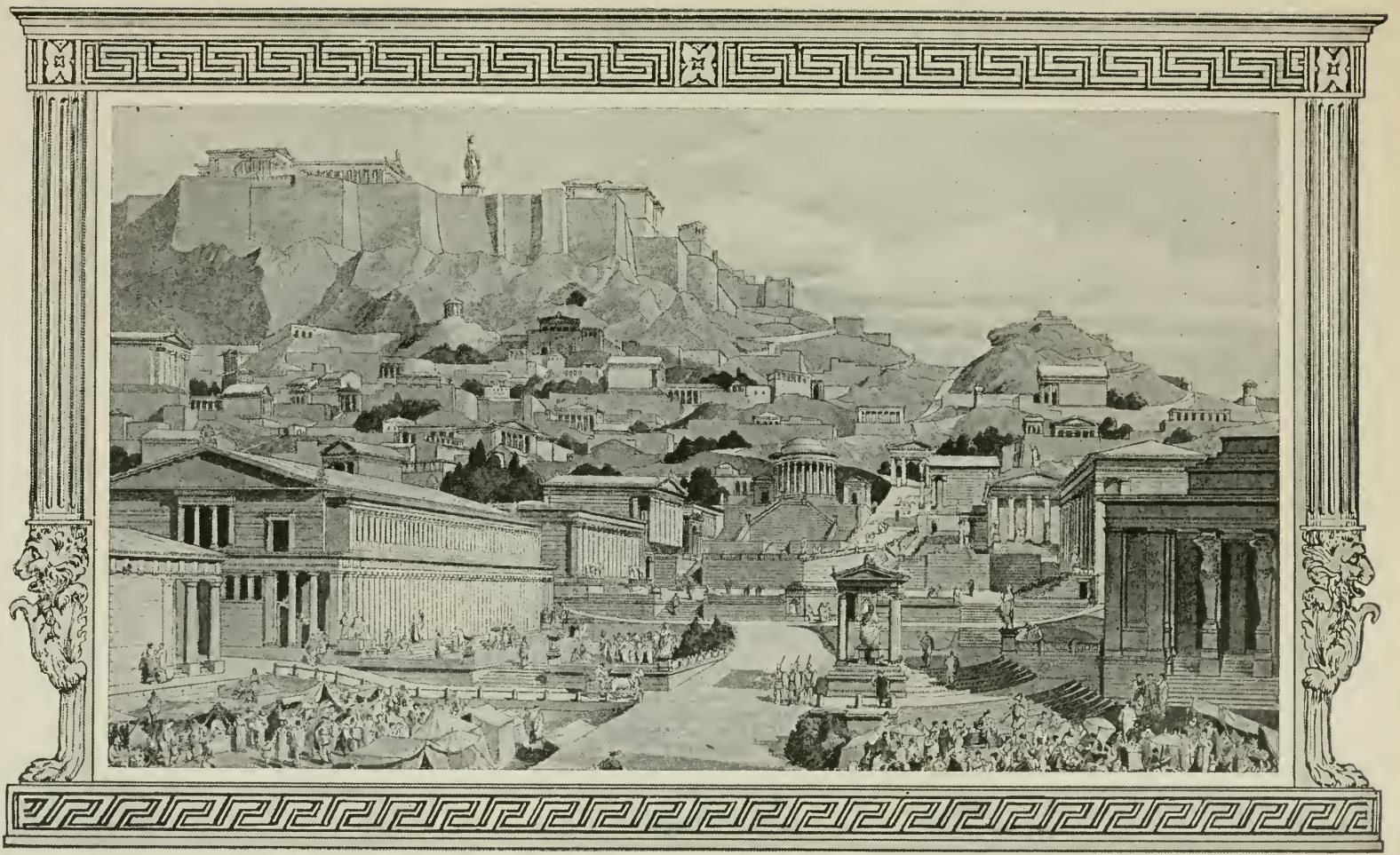
For a crucial instance we need look no further than to the after history of the Norman invaders of Britain; and we might almost assume, were there no actual memorials of the fact, that the civilisation which arose anew in the Ægean area, after the tumultuous period reflected in the Homeric lays and the Greek tradition of early Asiatic colonisation, was largely influenced by what had been there in the Ægean Age. There is, however, proof that such was indeed the fact. As will presently be pointed out, the long period of unrest had allowed other alien influences to enter Hellas, notably the Semitic from Phœnicia. But beside what appears to be Asiatic, and also beside what was new and distinctively Hellenic in the historic culture, which became prominent from the ninth century onwards (and this includes such all-important features as the conceptions of a supreme Father-God, and of the city-state—an idea of social order as obdurate to southern influences as our own Germanic social order has proved)—beside all this, the "non-Hellenic" elements in the civilisation are almost entirely such as may be referred to Ægean prototypes. Hellenic art, which flourished pre-eminently among the non-Dorian inhabitants, is distinguished from Eastern art by just those distinctive qualities of both realism and idealism which distinguished the highest art of the Ægean Age. Hellenic religion has for its oldest, most universal, and most popular deities various feminine impersonations, indistinguishable from the earlier Mother-Goddess. The chief of these is the unwedded Artemis-Aphrodite, supreme patroness of life all through the historic period of pagan Greece, the essential features of whose cult are still dominant in the observance of the Greek peasant-worshippers of the Christian Virgin. Hellenic cult is full of interesting survivals of the Tree and Stone ritual amply attested in Ægean cult. Hellenic custom retained many traces of a matriarchal system, appropriate to a society exclusively devoted to the Great Mother, whom Hellas took in name and actual primitive form to her pantheon under the names of Rhea and Kybéle. The Dorian and Ionian styles of architecture can be directly affiliated to the Ægean as revealed in Mycenæan tombs and Cnossian frescoes, and the Greek house is a development of the earlier domestic plan. Certain notable exceptions go far to prove the rule. The dress of the upper class, and the fashion of body-armour and weapons, seem to have been determined henceforth by the new folk. These are just the features in civilisation which conquering invaders would naturally introduce and retain. It is hardly necessary to add that if Ægean civilisation seriously influenced that of historic Hellas, it seriously influenced at second hand that of Western and Central Europe.

Hellas and its Conquerors

The New Civilisation in Greece

Hellenic civilisation, however, was perhaps not the only medium through which Ægean influence affected inner Europe. In Scandinavian tomb-furniture certain presumably foreign decorative motives, notably the returning spiral and the *triquetra*, which are identical with characteristic Ægean types, make their appearance in the first part of the local Bronze Age; and these have been noticed also, at a slightly later period, in the art of early Ireland, at that time the most civilised of the British Isles. In point of form also some Northern weapons in bronze resemble those of the Far South. If the spiral motive stood alone, the affiliation of this distant decorative art to the Ægean would be very doubtful, since Nature, whether through the forms assumed by vegetable tendrils or animal horns, or through those of shavings of wood or metal, might easily have suggested the ornament independently. But taken together with other related motives, and the evidence of assimilation of weapon-forms, these spirals raise a presumption in favour of an early obligation of North Europe to Ægean civilisation. A possible explanation of this fact, if fact it be, has been found in the communication which

Other Ægean Influences in Europe



ATHENS IN THE HEIGHT OF HER CIVILISATION: THE MARKET PLACE RECONSTRUCTED WITH THE ACROPOLIS IN THE BACKGROUND

appears to have been created by the Ægean demand for Baltic amber; and early ways for this traffic have been traced by Dr. Arthur Evans up the Adriatic, and also overland from the Ægean shores to the Danube basin, whence, from a point near the later Carnuntum, a combined route ran up the Moldau to the Elbe system. Further, it is the opinion of Professor Montelius and some other archæologists that not only certain bronze forms and decorative motives, but the usage of this metal itself was derived in Scandinavia from the south, somewhere before 1000 B.C. Since pure copper and pure tin hardly occur in Sweden among objects of this age, it has been held that the bronze was imported ready made in the mass. But Sweden contains large natural copper deposits, and tin is also found; and, therefore, this opinion is not universally accepted. Indeed, some authorities reverse the debt, and actually derive Ægean knowledge of bronze from Europe. If, however, the first derivation be ever proved, we shall have to refer the first use of metal weapons—an enormous step forward in social progress — in North and Central Europe to the Southern civilisations, such as the Egyptian, which had certainly known and used bronze for at least a thousand years before we find it in Sweden. It is sometimes maintained that Cyprus was the first, and long the sole, source of copper, which travelled north by way of Asia Minor and the Ægean to Hungary and inner Europe; but this is not proved. In any case, for some reason, bronze seems to have become known to the Scandinavians and Danes earlier than to the Gallic peoples.

Commercial Communication with Europe

Yet more evidence is there of possible Ægean communication with Central Europe after the introduction of iron, which seems not to have reached Scandinavia till almost the Christian Era. Transylvanian, Russian, and Balkan graves have yielded to recent explorers abundance of both weapons and decorated articles of personal use and adornment, closely resembling fabrics in the later periods of Ægean civilisation. Further into the European continent we have again the various evidence of the early Iron Age graves of the Salzkammergut on the south-eastern fringe of the Bavarian plain. This "Hallstatt" culture, as it is called, from the location of the chief cemetery, presents both in character and development an extraordinarily close parallel to that of the Ægean Geometric Age. About the same period we know also that a civilisation was in progress in the fertile lands round the head of the Adriatic, which is called Veneto-Illyrian, and shows even stronger evidence of Ægean influence than the Hallstatt culture; as, indeed, might be expected, if it be remembered that in Southern and Central Italy, as well as Sicily, forms and decoration, obviously learned from Ægean civilisation, as well as actual imported Ægean objects, had been plentiful ever since the bloom of the Ægean age. A visit to the local collections in Syracuse, Bari, and Ancona, will establish this fact to the satisfaction of any archæologist. These two civilisations, that of the Salzkammergut and that of the North Adriatic lands, have important bearing on the development of all Western Europe; for we know that the Celtic peoples, who penetrated south of the Alps in the sixth and fifth centuries B.C., learned much from both, and especially from the second; and graves, furnished after they had been pressed back again into Switzerland and Gaul, show abundant evidence of what is called "sub-Ægean" influence—that is, of form and ornament probably derived ultimately from Ægean culture, but indirectly, or after undergoing considerable degradation. Through various subsequent intermediaries, notably the Belgic tribes, these derivatives passed ultimately to our own islands, and we find their influence operative on early English art.

Influences in Western Europe

At the same time it is necessary to add that this derivation of the higher developments of mid-European and Scandinavian culture in the Bronze and Early Iron ages from the influence of Ægean civilisation is far from certain, whatever be the case for the Adriatic lands. Knowledge obtained since Dr. Evans and Dr. Montelius first expressed their views, especially in regard to the so-called Neolithic or "Butmir" pottery, which has a very wide range in South-Eastern Central Europe, has not strengthened their case, but rather tended to suggest that the continental culture developed independently to, though in a parallel direction with, that of the southern peninsulas and isles. If

Civilisations Help One Another

this view ultimately prevail, it will illustrate the opinion, to which we personally incline, that the derivation of civilisations, one from another in early times, is the exception and not the rule, except in respect of minor matters.

Two other intermediary civilisations of the South-east remain to be considered—the Hittite and the Phœnician. The first is still, unfortunately, very little known to us, and we are hardly in a position to say much about its influence on Europe until more small objects of use and ornament have been discovered on Hittite sites. The general facts so far ascertained, which make such influence probable, are these. This civilisation, characterised and distinguished from all others by a very individual art, and by a system of writing apparently independent of the Mesopotamian and Egyptian systems, but in its later development showing kinship to Mediterranean systems, lay across all the mainland routes from inner Asia and Egypt to South-eastern Europe. Its monuments have been found scattered thickly from the valley of the Syrian Orontes northwards, to within 150 miles of the Black Sea, and westward to the last passes which lead down from the Anatolian plateau to the Ægean littoral. So far as we can judge at present, its place of origin was Cappadocia, but its later focus was possibly in North Syria; while its period of florescence ranges back from about the sixth century B.C. for at least a thousand years.

The Vigorous Hittite Civilisation

It was, as we know from many written records, in frequent collision with both Egypt and Assyria, and in its southern home and latest period came under Mesopotamian domination. As is to be expected, therefore, its monuments show very strong Mesopotamian, and less strong Egyptian, influence. At the last, indeed, those of North Syria approximate very closely indeed to the contemporary Assyrian of the Sargonid Age. At the same time, however, they retain sufficient individuality never to be mistaken for other than Hittite; they represent facial types, dress, and fashion of arms which are peculiar; and the inscriptions they bear are always couched in a script having no relation to cuneiform writing.

This vigorous civilisation, occupying the great land bridge from Asia into Europe in the dawn of the historic Hellenic period, and eminently receptive of Mesopotamian influences, cannot but have been a medium through which these reached the Ægean Sea, and so told on Europe. But this did not take place to any appreciable extent in what is known as the prehistoric period. The Cretan products, and those of the other Ægean Isles and mainland Greece, betray very little Mesopotamian influence, and none that we can reasonably trace to the Hittites. So far as we can see, the Ægean culture was much more ancient than the Hittite, and if there was kinship between them we are bound, on the evidence, to derive the latter from the former, and not vice versa. There is a certain relation between late Ægean art and products of inland Asia Minor, but it indicates influence passing eastward rather than westward; and even on the remoter Ægean sites of Asia Minor—Hissarlik, for instance—non-Ægean traces are but slight, and do not suggest the influence of a strong civilisation focused inland.

Europe and Hittite Influence

In the early Hellenic Age, on the other hand, we have to note considerable Mesopotamian influence on Greek culture, and, at the same time, certain evidence of counter influence, both sub-Ægean and Græco-Lydian, on Mesopotamia, which is as yet not fully understood. But whether both or either of these respective influences were transmitted through the Hittite civilisation is still very doubtful. The Egyptian influence on archaic Anatolia, especially on Rhodes, and even on the Greek mainland, seems clearly to have come by way of the sea; and considering the part which the Phœnicians had been playing for some time previously as transmitters of things eastern, there is a probable alternative westward route for Mesopotamian influence also. In Cyprus, at any rate, this influence, which at a certain period has left strong traces, certainly came for the most part through the western Semites. The claim of the Hittites, however, is not to be denied altogether. Their script seems undoubtedly to have been the parent of the Lycian and other local Anatolian systems. Phrygian art and writing attest Græco-Lydian influence inland; Ionian culture was certainly not unaffected by the Lydian in which many students recognise a western offshoot of the Hittite; and there are a few features in Ionian cult and in cult representations which seem to be owed

The Hittite Pathway of Civilisation

rather to the religious system of the central plateau than to that native to the Ægean area. In this state of suspense we must leave the question, adding only these final remarks, that Greek tradition itself ascribed some of the arts and luxuries of its civilisation—for example, the coining of money—to Lydian invention, and also affiliated to Lydia a whole western culture, that of Etruria; while it is an undoubted fact that a Mesopotamian standard of weight-currency travelled to the Ægean, and thence affected all western commerce, but by what channel we do not certainly know. There is an unknown quantity in all this problem—viz., Lydia. We have reason to suspect the latter of a considerable influence on early Hellenic civilisation, both as creator and transmitter, but must await further evidence.

Part Played by the Phœnicians

The part played by the Phœnicians in transmitting influences of civilisation from East to West is far more certain, and is now much better understood than it was a few years ago. Much vague exaggeration of it has been swept away by recent demonstration that there is practically nothing of probable Phœnician origin in the remains of the Ægean culture. The script of the latter is wholly independent; the typical Phœnician vehicles of glyptic art, the cylinder and the scarab, were never naturalised in the early Ægean; the whole path of the latter's artistic development was distinct; and the Ægean religious representations, once regarded as Semitic, are now seen to be native. On the other hand, decadent and derived Ægean forms and motives appear among the earliest Phœnician known to us. Influence, if it passed at all, between the Ægean and the Syrian coast lands, in the prehistoric age, moved from west to east.

In short, we now know that the Phœnicians did not begin to spread over the western sea and influence Europe till the break up of the Ægean civilisation. The Homeric lays and Hellenic myths reflect the inception of a Semitic expansion, which must be placed after 1100 B.C. Even in Homer there is more mention of Greek ships than of Sidonian, and the Tyrian power is yet to come. The latter pushed westward later, and the founding of Carthage, usually dated in the eighth century, marks its first great achievement along those distant sea-routes, which certainly the Semites had been coming to know during a couple of centuries of huckstering trade, even if the dependence of the early Hellenes on Phœnician knowledge of these waters has been overrated. But, in any case, during the interval between the fall of Ægean power and the rise of the Hellenic maritime cities these Semites counted for much. Even in the light of Cretan discovery, we need not question their responsibility for the Greek alphabet, and thus, indirectly, for the ultimate medium of written communication used throughout European civilisation; nor need it be doubted that Hellenic writers, who trace early instruction in trade and barter to visits of Semitic ships to their coasts, show real, though limited, knowledge of fact. Phœnician factories were certainly established on Greek shores, and left Semitic forms among later Greek place-names; and it is quite possible that political power was exercised at one time by Semitic colonists in parts of Hellas. Sufficient Phœnician art products have been found on archaic Hellenic sites, to prove that, in the period between 1000 and 500 B.C., the Ægean coasts were often visited by these Semites. Such objects are especially numerous in Rhodes, a convenient stage on the westward sea route, and they radiate over not only Ionia and the Hellenic lands, but also into the further Mediterranean, to Sicily and its neighbouring islands, to Italy and South Gaul, and to Sardinia and Spain. Carthage probably had much to say in their western distribution.

Origin of Our Written Language

Semitic Influence in Greek Art

Of Semitic influence on archaic Greek art there is considerable evidence. After the Geometric Age, we find in the Greek lands pottery and metal-work showing certain motives and arrangement of decoration foreign to Ægean art, and referable ultimately to the Mesopotamian and Egyptian. Such are the animals and monsters disposed in concentric friezes and zones on Cypriote bowls, Corinthian vases, and the Cretan shields of the Idaean Cave. But this influence, strong and undoubted as it was, must not be over estimated. As the Hellenes rose to power, their instinct of sincerity and naturalism, inherited from Ægean civilisation, revolted against, and triumphed over, this parasitic Semitic art, and already in the ninth or eighth century we find a Græco-Lydian influence,



ÆNEAS AND DIDO: THE QUEEN OF CARTHAGE LISTENING TO THE STORY OF THE SIEGE OF TROY
From the Painting by P. Guerin, in the Louvre.

which owes nothing to Phœnician, breaking back to the east and creating the ivories of the Sargonid Age at Nineveh. Phœnician objects thenceforward become fewer and fewer in Hellenic strata, and in the sixth century B.C. they virtually vanish. By this time Phœnicia had become a subject country, about to give up the last ghost of its independence to the Greeks themselves, as its western offshoot, Carthage, was also to surrender a little later to another civilisation near akin to the Greek. But, needless to say, the Semite has had his full revenge for the short tenure of his earliest predominance in European waters. The fall of Phœnicia cleared the way for another Semitic family to capture international trade, and, first with one creed and then another, to conquer the Greeks, the Romans, and the World.

No Phœnician Influence in Britain

There are, of course, possibilities of direct Phœnician intercourse with non-Mediterranean Europe—for example, with England's south-western coasts; but they need not detain us. For whether certain Semites came to Cornwall in quest of tin or no, it is certain that by these no lasting influence of civilisation passed in to England. Neither the religion, the speech, nor the script of Britain owed them anything. Recent scholarship tends to discredit any Semitic element even in English south-western place-names.

Such, in brief outline, are the channels through which the civilisations of the South-eastern river-valleys could communicate with primitive Europe. It is easier to point them out than to say exactly what flowed along them. Seldom can so definite a debt be recorded as that under which we lie to the Semites of Phœnicia, for the names and the forms of the written characters which, presumably, they themselves had borrowed from Egypt, and modified ere they passed them westwards. Usually the obligation must be stated much more vaguely, being confined, as in the case of Ægean influences, to little more than a general responsibility for the spirit, and for many forms of the expression, of the first great artistic growth on the mainland soil of Europe, as well as for certain persistent and dynamic features in South European cults.

The Origins of our Civilisations

Thus, it becomes even more apparent at the end of our discussion than it was at the beginning that when all has been said about influences of Egypt and Mesopotamia, and influences of the intermediate civilisations of the Ægean, Syria, and Asia Minor, only a very small part of the whole story of incipient European civilisation has been told. Nor is it to be expected that the origin of our culture should be capable of being adequately expressed in terms of other cultures, developed at a great distance and under different geographical conditions. Civilisations, destined to be living growths, spring, it seems, of themselves, and the debts which they can incur at the first are very small and mostly in small things. It is only when they are come to adult estate, have bred men of wealth and leisure with open and receptive minds, and have broken through the geographical barriers about them, that they begin to borrow at large.

One of the intermediate civilisations of which we have treated, the Ægean, the only one whose own origins are fairly well known, offers proof in point. Its remains indicate but trifling obligations to neighbouring Egypt till a very late period, that which, in Crete, we call the Third Minoan. Thereafter, in the space of two or three generations, the evidence of its debt increases at a wholly disproportionate rate. So too, no doubt, in the misty period of the childhood of Central and Western Europe, little was borrowed from abroad that was essential to civilisation; and the heavy obligations which we owe to the Eastern lands fall in ages much more recent. They fall, in fact, in those times which saw the Anatolian cult of Kybéle and Attis, the Egyptian cult of Isis and Horus-Harpocrates, the Mesopotamian cult of Mithra, and, far more momentous, of course, than these, Christianity—Hebrew in origin if modified by Greek conceptions—brought by a greater intermediary civilisation than any with which we have had to deal, to the knowledge of inner European races already long emerged from savagery, and able and eager to borrow.

In the Childhood of Europe

DAVID GEORGE HOGARTH

THE TRIUMPH OF RACE

WHY ONE NATION CONQUERS ANOTHER

BY DR. G. ARCHDALL REID

IT is a familiar fact that offspring resemble their parents on the whole, but differ from them in details. For example, the child of a human being is always another, but never an exactly similar, human being.

These differences in detail are of two sorts, *inborn* and *acquired*. Inborn or innate differences arise "by nature"; the child is inherently unlike the parent—taller or shorter, fairer or darker, and so forth. Acquired differences, on the other hand, are due to the conditions under which parents and children have lived. Thus, owing to better or worse surroundings, the child may develop better or worse than the parent and so be taller or shorter, or a greater exposure to weather may render him darker or fairer.

It was formerly believed by scientific men, and is still believed by the public, that traits acquired by the parent tended to be inherited by the child—that is, reproduced as inborn traits. Thus it was supposed that if a man were made strong by exercise, or injured by accident, his child would tend to inherit, in some degree at least, the acquired benefit or injury, and as a result be naturally stronger or more defective than the parent was at the start.

Things We Cannot Inherit

But very prolonged and careful investigation has proved that this is certainly an error. For example, though for æons human beings have been learning to speak and walk, and make a multitude of other acquirements, yet none of these are ever inherited. In fact, owing to the evolution of memory and the retrogression of instinct, man, of all animals, acquires the most and inherits the least. Every child has to begin afresh and learn what its ancestors learnt; all are born ignorant; none speak or walk "naturally." Each starts where the parent began, not where he left off. The parental traits, if reproduced at all, are always of the same kind in the child as in the parents, and appear in the same way. That is, the inborn traits of the parent are always inborn in the offspring; the acquired traits are never anything but acquirements resulting from the same causes as they did in the parent. In brief, the acquirements of the parent are never transmuted into inborn characteristics in the child. They are never inherited. It is admitted on all hands that inborn differences—*variations*, as they are termed technically—tend to be inherited.

Acquired Traits not Hereditary

Thus, if the parent is naturally darker than the grandparent, the child tends in colour to resemble the former more than the latter. Since the child may vary from the parent in the same direction as the latter varied from the grandparent, these inborn differences may be accentuated in subsequent generations. It is due to this fact that plant and animal breeders have improved domesticated species. They are able to benefit the individual by improving his surroundings, but the race they can improve only by breeding from the best. In other words, when they have the latter end in view, they must build on natural variations, not on acquirements.

One of the most important problems in the whole range of science is the question as to what causes offspring to differ in this inborn, natural way from their parents. Many theories have been formulated, and the subject is still to some extent under discussion; but the evidence is overwhelming that variations—natural differences—are not generally caused, as most people believe, by anything that happens to the parent before the birth of the child, but are "spontaneous." The subject is a large and intricate one, and we have not space to discuss it at length. One or two facts, however, may be mentioned. The members of a litter of puppies, kittens, or pigs, may differ naturally amongst themselves and from their parents

A Great Problem of Science

in all sorts of ways—in colour, shape, size, hairiness, disposition, and so on. One puppy may present points of resemblance to the father, another to the mother, a third to some ancestor, while a fourth may be unlike any of its predecessors. Since, practically speaking, the puppies were all conditioned alike before birth, it is evident that these great differences must be "spontaneous." They cannot have been caused by such things as the good or ill health of the parents, their food, or the life they led, for, in that case, the puppies would all have varied in the same way.

Differences among Kindred

Again, malaria is, in effect, a universal disease on the West Coast of Africa. Individuals differ naturally in their powers of resisting it, some taking it lightly and some severely; but almost every negro suffers, and many children perish of it. If the sufferings of the parents caused children to be born weaker "by nature," it is evident that every individual would start life inferior to his predecessor at the start, and the race would thus degenerate and ultimately become extinct. On the other hand, if variations are "spontaneous," if, quite unaffected by the sufferings of the parents, some children are born naturally different, naturally more or less resistant to malaria than their predecessors, it is plain that the weeding out of the unfittest, the weak against the disease, would ultimately make the race resistant to it. In the one case the race would drift to destruction; in the other it would undergo protective evolution. Obviously, the latter is what has happened. Negroes show no signs of any kind of degeneration, but they are of all races the most resistant to malaria.

Similarly, Englishmen who have been much exposed to consumption and measles, natives of India who have been much afflicted by enteric fever and dysentery, Esquimaux who have suffered from cold, Arabs who have endured heat, Chinamen and Jews who have long dwelt under that complex of ill conditions found in slums and ghettos, are none of them degenerate, but, on the contrary, have become resistant, each race to its own particular ill-conditions in proportion to its sufferings in the past. In fact, it may be laid down as a general rule that races strengthen only when exposed to ill conditions, and deteriorate only when the conditions are so favourable that the unfit are not eliminated. An example of the latter is seen when prize breeds of animals and plants, however well nourished and cared for, are no longer bred with care. It follows that races, if not exterminated, are not injured but strengthened by ill conditions, by the elimination of the unfittest, as gold is refined by fire.

Suffering Produces Strength

It is a remarkable fact that many people are able to accomplish the surprising feat of knowing that races have become inured to ill conditions, and of believing at the same time that the offspring of people exposed to such conditions tend, as a rule, to be degenerate. It is as if they believed that two and two make four, and two more six, but that if a great number of two's are added together the total result is a minus quantity. Obviously the two beliefs are incompatible. A race cannot degenerate in every generation and yet emerge in the end strengthened from the struggle. The confusion has arisen because the two diametrically opposite propositions are seldom considered together, and in part also from a mistaken interpretation of what is observed in such situations as the slums of cities. Here puny children are seen to be derived from puny parents, and it is assumed that the children are degenerate because the parents have suffered.

Survival of the Fittest

As a fact we have no reason to doubt that the children are affected in precisely the same way as the parents. On the one hand, slums are sinks into which descend people naturally inferior, people who have varied spontaneously from their ancestors in such a way as to be feeble, physically or mentally, and who reproduce their like. On the other hand, the conditions are such that even the naturally strong, both parents and children, develop badly. Doubtless, owing to the constant elimination of the unfit, the latter—the naturally strong—are by far the more numerous. There is nothing to show that, if they were removed in early life to better surroundings, they would not develop just as well as the offspring of country folk.

The fact that races grow resistant to the ill conditions to which they are exposed, and degenerate when placed under particularly good conditions, is decisive proof that offspring are not, as a rule, innately affected by the surroundings of their parents. No doubt exceptions occur, but

these are amongst the most unfit, and the race is soon purged of them. Thus European dogs are said to degenerate when taken to India. But the existence of old-established native races of dogs is proof that the degenerative process is not perpetual. Malaria and many other ill conditions are quite normal parts of the environment of the races exposed to them, and have been so for thousands of years. Except for occasional unfavourable variations, which are quickly eliminated, they have long purged the races of those strains that tended to become degenerate under their influence.

An Evolution that has now Ceased

After man—through the evolution of the structures and faculties which distinguish him from the lower animals, the large brain, with its accompanying memory, the organs of speech, the hand, the erect attitude—had achieved the conquest of the earth, his selection and evolution along the ancestral lines gradually diminished, and has now almost ceased. At the present day clever, strong, or active people do not on the average have an appreciably more numerous progeny than those who are not exceptionally endowed. No modern race is intellectually superior to the Greeks who flourished more than two thousand years ago. The brains, the hands, the organs of speech, the erect attitude, have not altered. Apparently nothing more than traditional knowledge has improved.

The gradual accumulation of traditional knowledge during prehistoric times enabled man to cultivate animals and plants, and so to increase and regulate his supply of food. As a consequence his numbers multiplied. Areas of country which formerly supported only a few wandering hunters now afforded sustenance to growing multitudes of agriculturists, who often dwelt together for mutual protection in villages. Commerce followed agriculture, towns and cities arose, and civilisation dawned.

Civilisation implies a dense and settled community, protected from most of the dangers which beset wild animals, and in which, therefore, the elimination of the unfit is no longer of the kind that weeded out the brute and the utter savage. Some sort of elimination does occur, however, for, even in the most civilised states, multitudes of people perish in youth, before they have contributed their full quota of offspring to the race.

We have excellent opportunities of studying this elimination and noting whether it results in evolution. Indeed, man presents the only instance in Nature in which we are able to observe natural selection actually at work. In all modern states statistics are compiled which set out the causes of death, the mortality from each cause, and the ages of its victims. By comparing races which have been much afflicted by this or that cause of mortality with races that have been little or not at all affected, we are able to ascertain the resulting racial change, if any. As may be noted by everyone, *civilised people perish, with rare exceptions, of disease.*

Natural Selection at Work

MANKIND'S LONG BATTLE AGAINST BACTERIA

WE have just seen that every race is resistant to every disease precisely in proportion to its past experience of it. It follows that the evolution of civilised peoples is against disease. If any other kind of evolution is now occurring, no one as yet has been able to demonstrate it, though many unproved guesses have been made. Mere alterations in traditional knowledge is not evolution. Children may derive it just as well from other people as from their parents.

Resistance of Races to Disease

The vast majority of deaths from disease are of zymotic origin. A zymotic or microbic disease is caused by the entrance into the body of minute animals or plants (microbes), which find their nutriment there. There are many species of microbes, each disease being due to one. Some species are mainly air-borne, and infect through the breath; others are water-borne; others earth-borne; yet others insect-borne; while a few pass by actual contact from an infected to a healthy person.

Some diseases—for example, consumption and leprosy—are of indefinite but always prolonged duration; others, like measles, are short and sharp. In the case of the latter, for reasons we need not dwell on here, the body after an attack becomes, for a longer or shorter time, an unfit habitation for the microbes of that particular

species. The rapid recovery which occurs in these "acute" diseases, indeed, implies the banishment of the microbes. The air-borne diseases—measles, influenza, small-pox, and the like, all of that acute type which confers immunity against subsequent attacks—are very infective, spreading through a susceptible population with great rapidity. Under favourable conditions the water-borne diseases also—cholera, dysentery, enteric fever, and the like—may spread very quickly. Chief amongst the earth-borne diseases is consumption. It is contracted chiefly in such dark, ill-ventilated, and crowded houses as are built by the inhabitants of cold and temperate climates.

The Way Disease is Spread

The disease-producing microbes are an infinitesimal proportion of the total number of bacterial and protozoan species. In Nature it is not easy to find a speck of earth or a drop of water from which these minute living beings are absent. All decay, by means of which the dead bodies of plants and animals are returned to the soil, is due to them.

It is a safe assumption that the microbes of human diseases have evolved from non-parasitic species. The niche they now occupy in Nature is the human body. Two things formed essential parts of this evolution—first, the microbes became capable of existing and multiplying for a shorter or longer period in the body; secondly, they evolved means of passing from one living body to another. The latter must have been the more difficult process. Under favourable circumstances several species of microbes—for example, those of putrefaction, which are ordinarily non-parasitic—are capable of entering the human body and becoming virulent; but, since they cannot secure passage from one individual to another, they die out, and their virulence is lost. Historical evidence renders it probable that all known human diseases are of immense antiquity, the so-called new diseases being merely newly-observed diseases. It appears probable, therefore, that, owing to constant persecution by disease, by continued survival of the fittest, humanity has grown so resistant that no species of microbe which has not undergone concurrent evolution is now able to establish itself as a regular parasite.

The Immense Antiquity of Diseases

Obviously, since the microbes of human diseases draw their nutritive supplies from man, they cannot persist except amongst populations so crowded that they are able to pass from one individual to another in unending succession. When the succession fails, the disease dies out, and is not renewed, except from foreign sources. Microbic disease is never contracted in desert places far from human settlements, and even in modern times it is comparatively rare amongst nomadic tribes, and, seemingly, was quite unknown in Arctic regions and in many Pacific islands before its introduction by Europeans. These maladies, therefore, must have made their appearance only after men had peopled certain regions in considerable numbers,

On the other hand, we have no certain evidence that any well-established parasitic disease has ever completely died out. The chances are all against such an occurrence in the past. When once established as parasites, the microbes, owing to the constant growth of human population, found a constantly augmented food supply, and therefore constantly increased opportunities of reaching fresh fields of conquest. Sanitary science is still in its infancy. Preventive measures, and perhaps other agencies, have caused the disappearance of leprosy from several countries, but it is still prevalent in many quarters of the globe. Contagious diseases have spread very widely. Earth and air borne diseases have become endemic instead of merely epidemic. Consumption is always with us, and almost every child contracts measles, whooping-cough, chicken-pox, and common cold. Small-pox has been replaced by vaccination, which is merely modified small-pox. Malaria has spread but little during the historic epoch, but only because its microbes were already present in almost every place where the mosquitoes that convey it are able to exist.

Progress of Sanitary Science

All our information indicates the Eastern Hemisphere as the place of origin both of man and of his microbic diseases. Parts of it have been inhabited by a dense and settled population from a time immensely remote. "Behind dim empires ghosts of dimmer empires loom." Beyond the traces of the oldest civilisations we find evidences of primitive agricultural communities, and far beyond these the remains of the cave-men and hunters of the Stone Age. Even a race of hunters tends to increase faster than the food supply. Doubtless the pressure of population in



THE DAYS OF THE PLAGUE IN LONDON

Dr. Archdall Reid, in his essay on race supremacy, explains that the evolution of civilised peoples is against disease, and that, therefore, the age of pestilence and plague is passing. This picture of an incident in the greatest plague that has affected London in historical times—in the year 1665—is from the painting by F. W. Topham, R.I.

the Old World led to the colonisation of the New. But even in the New World there are signs of a civilisation so ancient that some authorities have placed its beginnings as far back as a score or more of thousands of years. With the exception of malaria, it is extremely doubtful whether any zymotic disease existed in the whole of the New World at the time of its discovery by Columbus.

The subject is involved in obscurity; but, while it is evident that the European adventurers introduced many diseases, there is no clear indication that they found and brought back one. Apparently all the diseases which have been prevalent in Europe and America during the last four hundred years were prevalent in the former continent before the fifteenth century. Venereal disease and yellow fever have sometimes been regarded as exceptions. But the former was well known to the Roman physicians, and was common during the Middle Ages. Moreover, the inhabitants of the New World take the disease in a very acute form, and it is not found in remote communities to which Europeans have had no access. Yellow fever was first noted with certainty in the West Indies in the middle of the seventeenth century. The records of the time "tell of the importation of the disease from place to place, and from island to island."

Origins of Rare Diseases

Not till more than a century later was it observed on the West Coast of Africa. There can be no doubt, however, that the earlier observers confused yellow fever with bilious malaria, and that it was present both in the West Indies and Africa long before a differential diagnosis was made. The fact that of all races negroes are most resistant to the disease would seem to indicate West Africa as the place of origin. In any case, it is certain that, with the exception of malaria, zymotic diseases, if not entirely absent, were extremely rare in the New World.

THE DISAPPEARANCE OF THE NATIVE RACES

ZYMOTIC disease, then, arose amongst the slowly-growing populations of the Old World. Air and insect borne diseases may have arisen amongst the early hunters and nomads. Similar forms of disease, murrains as they were anciently termed—for example, distemper, rinderpest, the horse sickness in South Africa, the rabbit plague in Northern Canada, and the cattle fever in Texas—occur among lower animals, when these are present in considerable numbers. With the exception of tuberculosis and leprosy, endemic disease was probably almost unknown in the sparsely-peopled ancient world. The facts that air and water borne diseases spread very rapidly, that the illnesses caused by them are comparatively short and sharp, and that recovery is followed by immunity, must have caused rapid exhaustion of the food supply of the microbes. Under such conditions the persistence of the pathogenic species was maintained among the scanty populations by a passage to new and perhaps very distant sources of supply.

The Age of Pestilence is Passing

Introduced by travellers, or spreading from tribe to tribe, they appeared suddenly in epidemic form as plagues and pestilences, and, disappearing as suddenly, were not known again till a fresh generation furnished a fresh supply of food.

When, however, in spite of war, famine, and pestilence, the human race increased to such an extent that the number of fresh births furnished a perennial supply of food, while at the same time a rising civilisation and improved means of communication lessened the isolation of various communities, then many diseases slowly passed from an epidemic to an endemic form. Pestilence grew rare, but every individual was exposed to infection, and, during youth, either perished from, or acquired immunity against, the more prevalent forms of disease.

When endemic, zymotic disease—at any rate, disease against which immunity can be acquired—is far less terrible than when epidemic. Modern examples of ancient epidemics may be seen in isolated regions. In Pacific islands, for example, air-borne disease spreads like a flame. The whole community is stricken down. The sick are left untended and perish in multitudes. The entire business of the community is neglected, and famine frequently follows. Under such conditions measles or whooping-cough, diseases which we in England are accustomed to regard as scarcely more than nuisances, may rise to the level of a great national disaster. Thus, in 1749, 30,000 natives perished of

Measles a National Scourge

measles on the banks of the Amazon. In 1829 half the population died in Astoria. In 1846 measles committed frightful ravages in the Hudson Bay territory. More recently a quarter of the total inhabitants was swept away in the Fiji group of islands.

Sanitation is Sometimes Powerless

At the dawn of history, long after the evolution of zymotic disease, the population of the Eastern Hemisphere was still sparse and scattered. Even as late as the Norman Conquest that of England was barely two millions—about one-third of the number now present in London. Means of communication were poor and beset by dangers. A journey from York to London was then a more serious affair than a journey from London to San Francisco to-day. Water and air borne diseases were, therefore, absent during long periods of time. When they came they spread as epidemics. Accordingly we read of plague and pestilence; of diseases suddenly becoming epidemic and sweeping away a fourth or half of entire communities. Historians are apt to attribute these immense catastrophes partly to the bad sanitation of the period and partly to diseases which have died out of the world, or, at any rate, out of Europe. Doubtless they are right in a few instances. But, apart from diseases which spread under special circumstances from tropical centres, bad sanitation, under modern conditions of intercommunication and crowding, tends to render water-borne disease endemic, not epidemic. Over air-borne disease it has no effect. Measles, whooping-cough, chickenpox, influenza, common cold, and smallpox (in a modified form) are as common as ever.

Plagues "the Wrath of God"

The character of these ancient epidemics, their special symptoms as indicated in old literature, their sudden and portentous appearance, which men attributed to the wrath of God, their tremendous infectivity and rapid spread, their equally sudden and complete departure as of Divine anger assuaged, point rather to air and water borne diseases of the types now endemic and comparatively harmless among us, but still so fearful in their effects on isolated communities. Like the light flashed from a child's mirror on a darkened wall, so they flickered and swept forwards and backwards from end to end of the Old World—from the Malay Peninsula to the North Cape of Norway, from Kamschatka to the south point of Africa. A parallel may be found in the recent epidemic of rinderpest amongst the herbivorous animals of Africa. Years might pass, old men might remember, the peoples might sacrifice to their gods; but when a fresh generation of those who knew not the disease had arisen, when the harvest of the non-immune was ripe and ready, the diseases would return to the dreadful reaping. Behind them the earth was heaped with the dead, and the few and stricken survivors grubbed for roots to satisfy their hunger. To-day sanitation has nearly abolished water-borne diseases, and, in a population largely immune, epidemics of air-borne disease, like a light thrown on a sunlit wall, are but faint shadows of that which they were in their old days of awful power.

Growth of Resisting Power

The progress of consumption was different; it was never truly epidemic. Owing to its low infectivity, to its lingering nature, to the fact that no immunity could be acquired against it, it did not spread suddenly when first introduced, but when once established its virulence did not abate within measurable time. In other words, it was endemic from the beginning. It made its home in the hovels of the early settlers on the land. In such situations—as in Polynesian villages—modern Englishmen do not take the disease. But their remote ancestors were more susceptible; they could be infected by a smaller dose of the bacilli. Gradually, as civilisation advanced, the conditions grew more stringent; men gathered into larger and denser communities, into hamlets and villages in which they built houses ill lighted and worse ventilated.

With the rise of towns, and ultimately of great cities, the stringency of selection continually increased; and with it, step by step, the resisting power of the race. To-day Englishmen dwell under conditions as impossible to their remote ancestors as to the modern Red Indians. In fact, no race, especially in cold and temperate climates, is now able to achieve civilisation, to dwell in dense communities, unless it has previously undergone evolution against tuberculosis. But of this more anon.

So during the long sweep of the ages microbic diseases strengthened their hold

on the inhabitants of the Eastern Hemisphere, who in turn slowly evolved powers of resistance. In like manner antelopes grew swift and wild sheep active when persecuted by beasts of prey. Then, when the germs of disease were rife in every home and thick on the garments of every man, there occurred the greatest event in human history, the vastest tragedy. Columbus, sailing across an untracked ocean, discovered the Western Hemisphere. The long separation between the inhabitants of the East and West ended. The diseases of the Old World burst with cataclysmal results on the New.

The ancient condition of the Eastern Hemisphere was reproduced in the West. Again we read of plague and pestilence, of water-borne and air-borne diseases coming and going in great epidemics, and of the famines that followed. Measles and cholera piled the earth with the dead. The part played by small-pox was even greater. When taken to the West Indies in 1507 whole tribes were exterminated. A few years later it quite depopulated San Domingo. In Mexico it destroyed three and a half millions of people. Prescott describes this first fearful epidemic as "sweeping over the land like fire over the prairies, smiting down prince and peasant, and leaving its path strewn with the dead bodies of the natives, who—in the strong language of a contemporary—perished in heaps like cattle stricken with murrain." In 1841 Catlin wrote of the United States: "Thirty millions of white men are now scuffling for the goods and luxuries of life over the bones of twelve millions of red men, six millions of whom have fallen victims to small-pox."

3,500,000 Destroyed by Small-pox

But the principal part was played by tuberculosis. Air-borne and water-borne diseases generally left an immune remnant, but against tuberculosis no immunity could be acquired. Red Indians and Caribs could not in a few generations achieve an evolution which the inhabitants of the Old World had accomplished only after thousands of years, and at the cost of hundreds of millions of lives. Civilisation, which implies a dense and settled community with cities and towns, had suddenly become a necessity, but remained an impossibility to all the inhabitants of the temperate parts of the West. It is a highly significant fact that throughout the New World no city or town has its native quarter, whereas every European settlement in Asia and Africa has its native suburbs. The aborigines of the New World are found only in remote or inaccessible parts.

The following is an example of the manner in which tuberculosis went to work: "The tribe of Hapaa is said to have numbered some four hundred when the smallpox came and reduced them by one-fourth. Six months later, a woman developed tubercular consumption; the disease spread like fire about the valley, and in less than a year two survivors, a man and a woman, fled from the newly-created solitude. . . . Early in the year of my visit, for example, or late in the year before, a first case of phthisis appeared in a household of seventeen persons, and by the end of August, when the tale was told to me, one soul survived, a boy who had been absent on his schooling."

A Plague that Spread like Fire

The Caribs of the West Indies are almost extinct. The Red Indians are going fast, as are the aborigines of cold and temperate South America. The Tasmanians have gone. The Australians and the Maoris are but a dwindling remnant. As surely as the trader with his clothes, or the missionary with his church and schoolroom appears, the work of extermination begins on Polynesian islands. Throughout the whole vast extent of the New World the only pure aborigines who seem destined to persist are those which live remote in mountains or in the depths of fever-haunted forests, where the white man is unable to build the towns and cities with which he has studded the cooler and more "healthy" regions of the north and south.

Many explanations, or pseudo-explanations, have been offered to account for the disappearance of the natives. We are told that they cannot endure "domestication," that they "pine like caged eagles" in confinement, that the change produced by civilisation makes them infertile, as the change produced by captivity makes some wild animals infertile, and so forth. But the only peoples who are disappearing are those of the New World, some of whom were by no means savage. In Asia and Africa are many tribes far lower in the scale of civilisation who have persisted in constant communication with dense and

Races that Decline before the Whites



THE EVE OF "THE VASTEST TRAGEDY IN HISTORY": COLUMBUS SIGHTING AMERICA

"The greatest event and the vastest tragedy in human history" is Dr. Archdall Reid's striking description of the discovery of America by Columbus. It ended the long separation between the inhabitants of East and West, and the diseases of the Old World burst with cataclysmal results upon the New. The picture, by George Harvey, shows Columbus approaching America, his rebellious crew pleading for pardon.

settled communities from time immemorial. Notwithstanding all that has been written, the people of the New World do not wither away mysteriously when brought into contact with the white man. They die as other men do of violence, or famine, or old age, or disease. But deaths from all these causes, except the last, are now comparatively rare amongst them—much rarer than formerly during the time of their perpetual wars. The vast majority die of imported diseases—exactly the same diseases as white men die of. But their mortality is invariably much higher than that of white men, and they perish on an average at a younger age.

All this is not mere hypothesis. It can be proved by reference to carefully collected and tabulated statistics published by every department of Public Health in America, Australasia, and Polynesia. The cause of the sterility cannot be demonstrated with the same precision; but it is hardly necessary to invent fanciful causes when a reasonable one is to hand. The high mortality indicates a high sick-rate, and presumably illness is as much a cause of sterility in the New World as in the Old, among savages as among civilised people.

The Spanish conquest of the West Indies was followed by the swift disappearance of the natives. To that end the Spaniards unconsciously adopted the most effectual means possible. They satisfied their greed by forcing the natives to labour in plantations and in mines, and their religious enthusiasm by compelling attendance in churches and cathedrals. In other words, they placed the natives under conditions the most favourable for acquiring the diseases which they imported by every vessel. When the native population dwindled, it was replaced by negro slaves from West Africa.

The history of negro migrations is extremely interesting and illuminating. There are no accounts of negro conquest outside the limits of Africa, but from very ancient times a constant stream of slaves

has passed to Southern Europe and Asia, where they have been employed mainly in domestic service, and in more modern times to America, where their occupation has been mainly agricultural. The invasion of Asia has continued to our own day. But one may search from Spain to the Malay peninsula and, except in recent importations, find scarcely a trace of a negro ancestry. Yet slaves, like cattle, are valuable property, more cheaply bred than imported. In Eastern countries they have often been kindly treated, and many have attained to wealth and power. Like the African soldiers in Ceylon, of whom it is recorded that, though many thousands were imported by the Dutch and English, hardly a descendant survives, all perished in a few generations, the elimination of the unfit being so stringent as to cause extinction, not evolution. A permanent colony of native Africans in the midst of an ancient consumption-infested civilisation is impossible.

Africans Die in our Civilisation

The fate of the negro migrations into America has been different. The race had undergone some evolution against consumption in Africa, and, therefore, was more resistant than the vanishing aborigines. In its new home, employed in agriculture in a hot climate where white men and tubercle bacilli, also recent importations, were as yet few in numbers, it was placed under the best conditions possible. Gradually, as the stringency of selection waxed, it evolved resisting power. To-day, American negroes are able to dwell even in Northern cities, though it is said "every other adult negro dies of consumption." After the discovery of America the principal maritime races of Western Europe competed for its possession. Spain and Portugal, then powerful nations, had the first start in the race, and chose the seemingly richer tropics. But the forests of the centre and south were defended by malaria, which raised a barrier against immigration, and by heat and light, which raised a barrier against tuberculosis. Moreover, the Spaniards and the Portuguese intermarried freely with the aborigines, and the mixed race which resulted inherits in half measure the resisting power of both stocks. At the present day this mixed race, with a leavening of mulattoes, pure Spaniards, Portuguese, and negroes, inhabits the cities and more civilised parts. Even in tropical America the pure aborigines are found, speaking generally, only beyond the verge of civilisation. Farther south the disappearance of the natives has been more complete, and the cooler, healthier, and more open pampas are settled by a race more purely European.

Fate of Natives of America

THE TRIUMPH OF THE ANGLO-SAXON PEOPLES

THE weaker British and French were shouldered into the seemingly inhospitable north. But the British won the battle of Quebec, and the French immigration soon ceased. That little fight is half forgotten, but it is doubtful if any battle in history had results half so important. It placed all North America in the grasp of the Anglo-Saxon, and gave his race enormous space for expansion. Unchecked by malaria, the new-comers gathered into communities and built towns and cities such as those which across the Atlantic were the homes of tuberculosis. The cold forced them to admit little air and light into their dwellings. The aborigines melted away from the borders of the settlements. Under the conditions there was little intermarriage. In that climate Indian women, and even half-caste children, could not exist within stone walls. The few white men who took native wives preserved them only while living a wild life remote from their kin.

Expansion of the Anglo-Saxon

The British conquest of North America and Australasia resembles the Saxon conquest of Great Britain. The natives have been exterminated within the area of settlement. It is in sharp contrast to their conquests in Asia and Africa. Both in the Old World and in the New the subjugation of the natives was accompanied by many wars and much bloodshed, and probably the conflicts in the former were more prolonged and destructive than those in the latter. But in no part of the Old World have the British exterminated the natives. They do not supplant them; they merely govern them. Southern Asia and East and West Africa are defended by malaria. The British cannot colonise them, and the natives have undergone such evolution against tuberculosis that



WHERE THE ANGLO-SAXON RACE OBTAINED POSSESSION OF NORTH AMERICA

On the Plains of Abraham, outside Quebec, the British and French troops fought in 1759, and the battle placed all North America in the grasp of the Anglo-Saxon, giving his race enormous space for expansion. It is doubtful, says Dr. Archdall Reid, if any battle in history had results half so important as this, although it is half forgotten

they are capable of resisting the hard conditions imposed by modern civilisation. In South Africa, where there is little malaria, Europeans share the land with the natives, but the latter are likely to remain in an overwhelming majority.

If history teaches any lesson with clearness it is this—that conquest, to be permanent, must be accompanied with extermination, otherwise in the fulness of time the natives expel or absorb the conquerors. The Saxon conquest of England was permanent; of the Norman conquest there remains scarcely a trace. The Huns and the Franks founded permanent empires in Europe; the Roman Empire, and that of the Saracens in Spain, soon tumbled into ruins. It is highly improbable, therefore, that the British will retain their hold on their Old World dependencies. A handful of aliens cannot for ever keep in subjugation large and increasing races that yearly become more intelligent and insistent in their demands for self-government. But no probable conjunction of circumstances can be thought of that will uproot the Anglo-Saxons from their wide possession in the New World. The wars of extermination are ceasing with the spread of civilisation. We have ransacked the world, and now know every important disease. Diseases cannot come to us as they came to our forefathers and to the Red Indians, like visitations from on high. All the diseases that are capable of travelling have very nearly reached their limits; the rest we are able to check. Even in the unlikely event of a new disease arising, it would affect other races equally. Canada and Australasia, like the United States, may separate from the parent stem, but the race will persist. If ever a New Zealander broods over the ruins of London, he will be of British descent.

The natural history of man is, in effect, a history of his evolution against disease. The story unfolded by it is of greater proportions than all the mass of trivial gossip about kings and queens and the accounts of futile dynastic wars and stupid religious controversies which fill so large a space in his written political history. In the latter, as told by historians, groping in obscurity and blinded by their own preconceptions, men and events are often distorted out of all proportions. A clever but prejudiced writer may pass base metal into perpetual circulation as gold. Luther and the Reformation are accepted as Divine by many people; they are reviled as diabolical by more.

Cromwell was long regarded as accursed; to-day he is half-deified. How many of us are able to decide, on grounds of fact, not of fiction, whether the Roman Empire perished because the Romans, becoming luxurious, sinned against our moral code, as ecclesiastic historians would have us believe, or because a disease of intolerance and stupidity clouded the clear Roman brain and enfeebled the strong Roman hand, as Gibbon would have us think? But the natural history of man deals, without obscurity and without uncertainty, with greater matters. Study it, and the mists clear away from much even of political history. We see clearly how little the conscious efforts of man have influenced his destiny. We see forces unrecognised, enormous, uncontrolled, uncontrollable, working slowly but mightily towards tremendous conclusions—forces so irresistible and unchanging that, watching them, we are able even to forecast something of the future.

The Natural History of Mankind

The mere political results of man's evolution against disease are of almost incalculable magnitude. The human races of one half of the world are dying, and are being replaced by races from the other half. Not all the wars of all time taken together constitute so great a tragedy. A quite disproportionate part in this great movement has been borne by our own race. It has seized on the larger part of those regions in which the aborigines were incapable of civilisation, because incapable of resisting consumption, and were undefended by malaria. In the void created by disease it has more room to spread and multiply than any other race.

Other races may dream of foreign conquests, but the time for founding permanent empires is past. There remains for them only temporary conquest, in a few malarious parts of the world in which Europeans cannot flourish and supplant the natives. Spain and Portugal lost their opportunity when they turned from the temperate regions and chose the tropics. France lost her opportunity on the Heights of Abraham. Germany is more than a century too late in the start. Russia can conquer only hardy aliens who will multiply under her rule and ultimately assert their supremacy. In times now far remote in the history of civilised peoples, the sword was the principal means for digging deep the foundations of permanent empires. Its place was taken by a more efficient instrument. A migrating race, armed with a new and deadly disease, and with high powers of resisting it, possesses a terrible weapon of offence. But now disease has spread over the whole world and so is losing its power of building empires. The long era of the great migrations of the human race, of the great conquests, is closing fast.

Disease is Mightier than the Sword

It is generally supposed by historians and others that races that disappear before the march of civilisation are mentally unfitted for it. The assumption is not supported by an iota of real evidence. To be mentally incapable a race must be of very defective memory. Recently a school of Australian natives, who belong to one of the "lowest" of races, took the first place in the colony. Negroes occupy a very inferior position in America, especially in Anglo-Saxon territories. But they are stamped by glaring physical differences, are treated with great contempt and jealousy by the whites, and their acquired mental attitudes, therefore, do not develop under good conditions. It is very possible that they are mentally inferior to the whites; but not so inferior as is commonly believed.

Possibilities of the Black Races

Russian peasants, though not sharply differentiated by physical peculiarities from the governing classes, are equally scorned by them, and show a mental development hardly, if at all, superior to the negroes of United States. The Latins of South America seem very incapable of orderly government, but they are the heirs of a civilisation older than our own. At any rate, while it is conceivable the American negroes and some other races are incapable of building up a highly-enlightened society by their own efforts, it is manifest that they are able to persist and multiply when civilised conditions are imposed on them. Not so the aborigines of the New World, some of whom—for example, the Maoris and the Polynesians—are admittedly of good mental type. They perish swiftly and helplessly of *bodily* ailments.

Very clearly, then, human races are capable or incapable of civilisation, not because they are mentally, but because they are physically, fit or unfit.

G. Archdall Reid

AN ALPHABET OF RACES

BEING A HANDY DICTIONARY OF MANKIND

BY W. E. GARRETT FISHER

AN attempt is made in these pages to compile a dictionary of the main existing races of the world, arranged in alphabetical order. The accompanying Ethnological Chart on page 352, will enable the reader to see at a glance the relationship of the various main divisions, families, and stocks under which these races are distributed. The Dictionary and the Chart, if used in conjunction, will thus supply information about any race named in the list, and will tell the inquirer to what branch of the human race it belongs. It is obviously impossible to make the Dictionary inclusive of every tiny and out-of-the-way tribe of Africa or South America, but all important races are included. If the reader wants to know something about the Abyssinians, he will look them up in the Dictionary, and find that they are partly Semitic Himyarites, partly Hamitic Gallas, etc. The Chart will then show him that the Hamitic and Semitic families belong to the great Caucasic Division of mankind, that the Himyarites are one of the main stocks of the Semitic family, and that the Gallas belong to the Eastern branch of the Hamitic family. The student should familiarise himself with the names and places of the families and chief stocks of mankind, as given in the Chart, and so greatly facilitate the task of reference. The intention of both Chart and Dictionary is, of course, to serve as a kind of index to the History proper, which must be consulted for further information. As far as can be discovered, no previous attempt has been made to summarise the conclusions of modern ethnology in this convenient form. The illustrations depict some of the most interesting races.

Ababua. A tribe of Sudanese negroes in Central Africa. See WELLE GROUP.

Abaka. See NILITIC GROUP.

Abkhasians. A Western Caucasian tribe occupying the Black Sea coast from Pitzunta to Mingrelia, akin to CIRCASSIANS (*q.v.*).

Abo, or **Ibo.** See NIGERIAN GROUP.

Abors. An Assamese tribe in the Brahmaputra Valley, belonging to the Tibetan branch of the Southern Mongolic family. Wild jungle-dwellers.

Absarakas. See SIOUAN.

Abukaya. A negro tribe in the Sudan. See NILITIC GROUP.

Abunda. A settled and fairly civilised race of Bantu Negroes, occupying the seaboard and inland districts of Portuguese West Africa, south of Ambriz.

Abyssinians. A mixed race of Hamitic, Semitic, and Negro stock, inhabiting Abyssinia (from Arabic *habashi*—mixed). The main racial element—Abyssinians proper—consists of brown-skinned Semitic Himyarites, who probably emigrated from Arabia in prehistoric times, and profess themselves descended from the Queen of Sheba. Since the sixteenth century Abyssinia has been over-run by the Hamitic Gallas (*q.v.*), who have largely mingled their blood with this older element. There is also a considerable admixture of Sudanese Negro blood. Since the fourth century the religion of Abyssinia has been a corrupt form of Christianity; the mediæval myth of Prester John perhaps relates to this fact.

Acadians. French settlers of seventeenth century in Nova Scotia.

Achæans. See ARGIVES

Achinese. A warlike Malay race of Sumatra long at war with the Dutch colonists.

Accras. See GA.

Achuas, or **Wochua.** A pygmy Negrito race, well-proportioned, though dwarfish, inhabiting the forests of the Welle and Aruwimi districts in Central Africa, and living by hunting.

Adamawa Group. A group of Sudanese Negro tribes inhabiting the district of the Upper Benue in Northern Nigeria.

Adansis. Negro tribe on Guinea coast. See TSHI.

Æolians. See HELLENES.

Aetas. A Negrito race of the Philippine Islands, belonging to the Oceanic family of Ethiopic Man. Short of stature, black-skinned, with woolly hair, they present many points of resemblance to the Negritoes of Central Africa. There are many crosses between Aetas and Malays.

Afars. A nomadic Turki tribe of Persia. See also DANAKILS.

Afghans. A race of Iranian stock, belonging to the great Aryan family, who form about half the population of Afghanistan. They are divided into various tribes, of which the Duranis are the dominant one, the Ghilzais the most warlike, and the Yusufzais the most turbulent. There are also large tribes known as Pathans, who are of the same stock as the Afghans, but are classed separately. The Afghans are a handsome and athletic race, inured to war from their childhood, lawless and treacherous, but sober and hardy.

Throughout the nineteenth century they were a constant source of trouble to British India, but a new era seems to have opened under the present Amir. For non-Afghan inhabitants of Afghanistan, see HAZARAS, KIZIL-BASHIS, and TAJIKS.

Afridis. A warlike and turbulent Pathan race, occupying the neighbourhood of the Khyber Pass, and often at war with the English.

Afrikanders. Persons of European descent born and living in South Africa.

Agaos. An indigenous Hamitic race of Northern Abyssinia.

Ahoms. Primitive inhabitants of Assam, belonging to the Indo-Chinese stock of the Southern Mongolic family.

Ainus. An aberrant family of Caucasic Man in the Far East. They were probably the aboriginal inhabitants of Japan, but are now few in number, and confined to Yezo, the Kurile Islands, and part of Sakhalin. They have regular and often handsome features of Caucasic type, but are of low stature, and characteristically marked by an abundance of coarse, black, wavy or crisp hair on head, face, and body, whence they are commonly called the "Hairy Ainus."

Akawais. See CARIBS.

Akkas. A pygmy Negrito race of the Welle district in Central Africa, akin to the Achuas (*q.v.*), who are specially interesting because they are represented on Egyptian monuments of 3400 B.C., with their existing racial characters.

Akkads, or **Akkadians.** An extinct Mesopotamian race, founders of the oldest known civilisation in Babylonia, who belonged to the Northern Mongolic family, and probably to the Turki or Finno-Ugrian stock. They invented the cuneiform alphabet, which was adopted by their Semitic successors—see BABYLONIANS—and it is thought that they may have been the ancestors of the Chinese.

Akpas. See NIGERIAN GROUP.

Alani. A warlike nomadic race, probably belonging to the Turki stock of the Northern Mongolic family, and allied to the Tartars (*q.v.*). In the fifth century they made settlements in Gaul and Spain, where they were absorbed by the Vandals and the Visigoths respectively. The remnant left in the East of Europe were conquered in the thirteenth century by the Golden Horde, and their name disappeared from history.

Albanians, or **Arnauts.** The warlike race of mountaineers who inhabit Albania, on the western coast of the Balkan Peninsula. They are semi-civilised, live in a perpetual state of tribal warfare, and make admirable soldiers, forming the best part of the Turkish Army. They are probably the oldest of the Balkan races, and represent the earliest Aryan immigrants into Europe [see ILLYRIANS]. They are partly Christian, partly Mohammedan.

Albigenses. A heretical sect, mostly of Provençal descent, who appeared in the South of France about the eleventh century, and were rigidly persecuted until they became extinct in the middle of the thirteenth century.

Alemanni. An ancient German tribe on Upper Rhine, of Teutonic stock, from whom the modern Swabians and Swiss are in great part descended.

Aleutians. Natives of Aleutian Islands, belonging to Eskimo stock of Northern American family.

Alfuros. A half-breed race between Malays and Papuans: in Malaysia, a term given by Malays to their rude non-Mohammedan neighbours.

Algonquian. A group of North American Indian tribes, formerly inhabiting the Central and Southern States of America, east of the Rocky Mountains, and as far south as South Carolina, now gathered into Indian Reservations. They include the Algonquin, Blackfoot, Cheyenne, Cree, Delaware, Fox, Illinois, Massachusett, Mohican, Ojibway, Sac, Shawnee, and many smaller tribes.

Alibamus. See MUSKHOGEAN.

Ali-Elis. See TURKOMANS.

Alsatians. Natives of Alsace, of High German stock, allied to the Swabians (*q.v.*).

Amadis. See WELLE GROUP.

Ama. Prefix of many Bantu racial names, as Ama-Zulu, Ama-Xosa. See ZULU, etc.

American. One of the four main divisions of the human race, comprising three families, occupying North, Central, and Southern America respectively. Typically red-skinned, with lank, black hair, retreating foreheads, high-bridged noses, and either long or broad skulls—dolichocephalic or brachycephalic.

Americans. The English-speaking white inhabitants of the United States, mainly of Anglo-Saxon descent. See also LATIN AMERICANS.

Amharas. Natives of Central Abyssinia, of Hamitic descent.

Amorites. A branch of the ancient Libyan race, of Semitic origin, inhabiting Canaan before the arrival of the Israelites from Egypt.

Anatolian Turks. See TURKS.

Andamanese. Natives of Andaman Islands, a race belonging to the Oceanic Negrito family, possibly representing the primitive type from which both Negroes and Papuans have sprung. They exhibit the lowest stage of civilisation.

Andis. See LESGHIANS.

Angles. A Teutonic race of Low German stock, who formerly inhabited the country round Schleswig, in North Germany. In the fifth century they migrated in large numbers to Britain, and with the Jutes and Saxons formed the stock of the Anglo-Saxon or English people.

Anglo-Saxons. A general name now given to the English-speaking races of English, Scotch, and even Irish and Welsh descent, who inhabit the British Empire; in a wider sense, to all people of British descent.

Annamese. Natives of Annam, or Cochin-China, belonging to the Indo-Chinese stock of the Southern Mongolic family; now under French rule.

Apaches. See ATHABASCAN.

Appalachis. See MUSKHOGEAN.

Arabs. One of the main branches of the Semitic family, inhabiting the Arabian peninsula. They are usually divided into two branches, the Ishmaelites of the north and the Joktanides of the south. The latter probably represent the oldest Arab stock, and may be of African origin. The primitive Arabs were nomadic horse-breeders and shepherds, very warlike, and of fine physical development. Under Islam they reared an enduring religious civilisation, which has had the greatest influence on the world after Christianity.

Arakanese. Natives of Arakan, in Lower Burma, of Indo-Chinese stock.

Aramæans. One of the main groups of the Semitic family, Syro-Chaldeans, who anciently inhabited Syria, Palestine, and the Euphrates Valley. The modern Syrians (*q.v.*) belong to it.

A LITTLE GALLERY OF RACES

REPRODUCED FROM THE FAMOUS DRAWINGS

BY SIR DAVID WILKIE, R.A.



A NATIVE OF BRITISH INDIA



A CIRCASSIAN LADY



A SPANISH CHILD WITH HER NURSE



A PERSIAN PRINCE AND HIS NUBIAN SLAVE



A DRAGOMAN AT BEYROUT



A TRAVELLING TARTAR



AN ARAB SHEIK



A LETTER-WRITER OF CONSTANTINOPLE

Araucanians. The chief Indian race of Chili, possessing an ancient civilisation like those of Peru and Mexico, though less advanced The Araucanians are probably the finest native race of the New World. They are a fierce and warlike people, who have always preserved their independence.

Arawaks. A group of South American Indian tribes in the Guianas, including Maypuris, Wapisianas, Atorais and others.

Arcadians. A race of ancient Greece, inhabiting the central highlands of the Peloponnesus, whose seclusion from the world caused them to be identified with the quality which we still call Arcadian simplicity.

Arecunas. See CARIBS.

Argentines. White natives of the Argentine Republic in South America, mainly of Spanish descent.

Argives. Natives of Argos, the most important state of Homeric Greece : hence a generic term for Greeks or Hellenes in the Homeric Age. Achæans is another term similarly used.

Armenians. Natives of Armenia, the mountainous country round Mount Ararat, now divided between Russia, Persia, and Turkey. They belong to the Iranian stock of the Aryan family, blended with Semitic blood, and with a still older unknown but probably non-Aryan element. They are not warlike, but of quick intelligence and specially successful in commerce.

Arnauts. See ALBANIANS.

Aryans. The most important family of Caucasic Man, to which all the chief civilisations of modern times belong. A tall, fair-skinned, long-headed race, whose origin is still doubtful—though it was probably in Central Asia—and who spread in prehistoric times over the whole of Europe and parts of Asia and Africa. Almost all modern Europeans are of Aryan descent. The family is also called INDO-EUROPEAN or INDO-GERMANIC, but these names are open to objections from which the term Aryan is free.

Ashantis. See TSHI.

Assamese. Natives of Assam, between India and Burma, belonging to the Hindu stock of the Aryan family.

Assinaboins. See SIOUAN.

Assyrians. One of the main branches of the Semitic family. The Assyrians founded a great empire in the northern part of Mesopotamia, of which Nineveh was the capital, and afterwards conquered the older Babylonian state (710 B.C.) and Egypt (671 B.C.), thus forming the first world-empire known to history. Within a century Assyria had become a Median province, and its people ceased to have an independent existence.

Athabascan or **Tinney.** A group of North American Indian tribes, formerly inhabiting Alaska and the greatest part of Canada. It includes the Apaches, Chippewayans, Hupas, Kutchins, Navajos, Tacullis, and Umbquas.

Athenians. The most important race of ancient Greece, whose city of Athens was the earliest centre of civilisation in the historical age of Europe.

Australians. The aborigines of Australia, a branch of the Oceanic Negro family. Their numerous tribes present a general uniformity of physical and mental development, under which two main types may be recognised. The earlier of these is probably that shown by the extinct Tasmanians (*q.v.*), one of the lowest races in point of culture yet discovered, who were probably still in the earliest stage of the Stone Age. The other type was perhaps akin to the Dravidians of India, or to a very low Caucasic race. The Australians are among the lowest of savage races, and present many features which have thrown light on the manners, customs and beliefs of primitive man.

Australians. White inhabitants of Australia, mostly of Anglo-Saxon descent.

Austrians. Inhabitants of the Austrian empire, including a great diversity of races. The name is properly applied only to the German-speaking people, of High-German Teutonic stock, who predominate in Austria proper.

Auvergnats. Natives of Auvergne, in Central France. A short, sturdy, dark, round-skulled race, formerly regarded as typical Aryan Celts, but possibly descended from an older non-Aryan people. Much employed in Paris as porters.

Avars. See LESGHIANS.

Avars. A Tartar tribe, belonging to the Turki stock of the Northern Mongolic family, who appeared in the district round the Caspian Sea about the fourth century, and later made predatory raids over a large part of Eastern Europe. They were subdued by Charlemagne, and disappeared from history in the ninth century. They seem to have been closely allied to the Huns, whom they resembled in physical characteristics and warlike qualities.

Awawandias. Bantu Negroes of the Nyassa plateau in British Central Africa.

Aymaras. A race of South American Indians in Bolivia, probably related to the Incas (*q.v.*) and perhaps their ancestors.

Azandeh, or **Niam-Niam.** Sudanese Negroes of the Welle group. Notorious cannibals.

Aztecs. The dominant Indian race in Mexico at the arrival of the Spanish invaders. They entered the country about the end of the thirteenth century, and founded the city of Mexico in 1325. Around it they reared a remarkable civilisation and a sanguinary religion. They were warlike, ferocious and cruel, but had a considerable aptitude for the arts of peace. Their empire was destroyed by Cortes in 1521, and annexed to Spain. Every trace of Aztec nationality was suppressed, but their name still lingers among the Nahuan Indians, and their blood is mixed with that of the conquerors. Many attempts have been made to find an Old World origin for Mexican culture, but they are not convincing.

Babylonians. The Semitic race which founded one of the greatest of ancient civilisations in the rich alluvial plains of Chaldæa and on the arid plateau of Mesopotamia. Their history is too long to summarise here, but it may be stated that the Semitic peoples, variously known as Babylonians, Chaldæans, Elamites, Medians, and Assyrians, invaded and dispossessed at different times the primitive Mongolic race of Akkads (*q.v.*). Their earliest settlement seems to have been at Ur of the Chaldees, on the right bank of the Euphrates. Babylon and Nineveh were afterwards the seats of the Babylonian and Assyrian powers, whilst Elamite and Median conquerors intervened at various times. These powerful Semitic races made great advances in art, science, literature, religion, and social policy. Their first incursion, probably from Arabia, into the Euphrates Valley dates back to about 3800 B.C.

Baggaras. A fierce and warlike race settled in the Anglo-Egyptian Sudan, and formerly dominant under the Mahdi.

Baghirmis. See LAKE CHAD GROUP.

Bakairi. See CARIBS.

Bakatla, Bakwena. Bantu Negroes of Bechuana stock.

Bakwiri. Bantu Negroes settled in the Cameroons.

Balinese. A Malayan race of the East Indian Archipelago.

Balolo. Bantu Negroes of the Middle Congo; one of the finest negro races.

Balong. Bantu Negroes of West Africa.

Baltis. A hardy Tibetan race, inhabiting the Alpine valley of the Upper Indus.

Baluba, or Basonge. A dominant Bantu Negro race of the Kassai basin in Equatorial Africa.

Baluchis, or Beluchis. Natives of Baluchistan, south of Afghanistan, of Iranian (Aryan) descent, with a mingling of Tartar (Mongolic) blood. The dominant race of the country is the Brahui, aboriginals who are probably of Mongolic descent, allied to the Dravidians (*q.v.*) of India. The Brahui are of Mongolic type, short, with round flat faces, hospitable and generous. They are the more settled portion of the inhabitants. The Baluchis are chiefly nomads, taller, with more Aryan features, a warlike and predatory people.

Balunda. Bantu Negroes of South Central Africa, occupying the Congo-Zambesi divide.

Bamangwato. Bantu Negroes of north Bechuanaland; Khama's semi-civilised people.

Bambaras. See MANDINGAN.

Banandi. Bantu Negroes of apish type, in the Semliki forests.

Bangalas. Bantu Negroes of Middle Congo, on the Ubangi river.

Bantus. One of the two subdivisions of the African Negro family of Ethiopic Man, occupying the southern half of the African continent, south of the Cameroons and Albert Nyanza. A Negro race modified from the Sudanese type by Hamite influences.

Banyai. Bantu Negroes, south of the Middle Zambesi.

Banyoro. See WANYORO.

Bapedi. Bantu Negroes of Bechuana stock.

Bareas. Sudanese Negroes inhabiting the Abyssinian slopes.

Barguzins. See BURIATS.

Baris. See NILITIC GROUP.

Barolongs. Bantu Negroes of Bechuana stock, between Vryburg and Molopo river. Mafeking is their capital.

Barotse. Bantu Negroes of Bechuana stock, about headwaters of Molopo river.

Barrés. South American Indians in Venezuela and Guiana.

Basés. Sudanese Negroes of Abyssinian slopes, a very low negroid type.

Bashkirs. A branch of the Turki stock of the Northern Mongolic family. They are first mentioned in the tenth century as a warlike and idolatrous race, noted for their large, round, short heads, from which their name is derived. They now inhabit the Orenberg and Perm districts of Russia, on the western slopes of the Ural. Some are settled agriculturists, others pastoral nomads.

Bashukulumbwe. Bantu Negroes of Kafue basin in Zambesia.

Basimba or Cimbebas. Aboriginal Negroes of South Angola; a low Bantu type, or possibly Negrito, allied to Bushmen.

Basonge. See BALUBA.

Basques. One of the few non-Aryan races still existing in Europe, where they inhabit the districts on the French and Spanish sides of the Western Pyrenees. They originally occupied a much wider area in this neighbourhood, and preserve their ancient costume and language. Their ethnological affinities are still in dispute, but the best opinion is that they represent the ancient Iberians (*q.v.*), a Western Hamitic race, related to the Berbers of North Africa on the one hand and to the Picts of Scotland and the ancient Irish on the other. Probably they have occupied their present home since Neolithic times. They are mainly agriculturists, with all the rustic virtues, and make excellent soldiers and servants.

Bassas. See LIBERIAN GROUP.

Bastaards. See GRIQUAS.

Bastarnæ. See GOTHS.

Basutos. The most civilised race of Bantu Negroes, of the Bechuana stock, who inhabit the rugged uplands of Basutoland, a British Crown Colony. They have long been subjected to European and Christian influence, under which they have presented the sole instance of a pure negro community, which has made itself self-supporting and approximately civilised. They have succeeded in assimilating Western culture, and their little State—which always preserved its independence against other natives and Boers—is a very flourishing example of what the negro can do under favourable auspices.

Batanga. Bantu Negroes of the Cameroons.

Batavi. An ancient German race inhabiting the island formed by the Meuse and an arm of the Rhine. Ancestors of the modern Dutch.

Bateke. Bantu Negroes of Congo, above Stanley Pool.

Batjans. See INDONESIAN.

Batlapi. Bantu Negroes of Bechuana stock, near Vryburg.

Batonga or Batoka. Bantu Negroes of Zambesia, Manicaland and Tongaland.

Battaks. A pre-Malay race of North Sumatra, probably allied to the Polynesians (*q.v.*).

Batwas. A pygmy (*q.v.*) Negrito race south of Congo, allied to Bushmen.

Batwanas. Bantu Negroes of North Bechuanaland.

Bavarians. A branch of the High German stock of the Teutonic family, in Bavaria.

Bayansis. Bantu Negroes of Middle Congo, on Kwa River. Strong negro element.

Bechuanas. A main stock of Bantu Negroes, occupying what is known as British Bechuanaland. The name is of European origin, and has no native significance as applied to the race, but is a convenient general term.

Bedawi or Bedouins. Nomadic Arabs (*q.v.*) who inhabit the deserts of Arabia and the neighbouring countries, and live by stock-breeding and robbery. Their breed of horses is world-famous. They are independent, chivalrous and hospitable. They correspond to the Biblical Ishmaelites, whose race and customs they preserve practically unchanged.

Bejas. A race of Eastern Hamites, of splendid physique, occupying the eastern seaboard of Africa north of Massowah, including Bisharis, Hadendowas, and other tribes.

Belgae. The northernmost of the three races occupying Gaul in Cæsar's time, probably of Low German stock, with perhaps a Celtic element.

Belgians. The inhabitants of Belgium, formerly the Spanish or Austrian Netherlands, of very mixed origin. The natives are either Flemings of Teutonic stock, or Celtic Walloons (*q.v.*). Mingled with these are large numbers of German, French and Dutch immigrants; and constant crossing of blood has tended to produce a truly Belgian type out of all these fluctuating elements. They are among the most patient and productive of agriculturists, mostly small proprietors; and they possess flourishing manufactures and a rich commerce through the great port of Antwerp

Beluchis. See Baluchis.

Bengalis. The majority of the natives of Bengal belong to the Hindu stock of the Aryan family, which was probably the first to develop a true civilisation and a great literature (in the ancient Sanscrit tongue). The typical Bengali is quick-witted, versatile, and successful in the arts of peace, but not warlike—though the native army of the old East Indian Company was largely recruited from Bengal. The Bengali Babu, of the professional or lower official class, is well known.

Beluchis. See Baluchis.

Benin. See Nigerian Group.

Berbers. A Western Hamitic race occupying the Atlas Mountains and the Northern Sahara, of predatory and warlike habits. They are known in Algeria as Kabyles, and in Sahara as Tuaregs. Largely dark-haired and swarthy, with prominent noses, they belong to the Melanochroid branch of Caucasic Man. They correspond to the ancient Numidians.

Betsimisarakas. One of the three main divisions of the Malagasy, or Malayo-African race which inhabits Madagascar. They occupy the east coast.

Bhils. Primitive and still wild non-Aryan inhabitants of Central India, of Kolarian family (*q.v.*).

Bisharis. See Bejas.

Blackfoot Indians. See Algonquian.

Bœotians. A branch of the Æolian race in ancient Greece. The Bœotians were supposed to be peculiarly dull, and were the typical rustic clowns of Greek literature.

Boers. White inhabitants of Cape Colony, the Transvaal, and the Orange River Colony, mainly of Dutch descent, with a French Huguenot element and a sprinkling of Negro blood. They were the original colonists of South Africa, which they entered in 1652 A race of farmers (Boer is derived from the Dutch boor, peasant), they also proved themselves to be hardy pioneers and admirable, though not at all romantic, fighters, learning in long native wars the arts of strategy, which they exercised so well against the English in the South African War of 1899–1902. They have now accepted the English rule, and promise to be among our most flourishing African subjects.

Bohemians. See Czech.

Bolivians. White natives of Bolivia in South America, of Spanish descent, with a considerable admixture of Indian blood.

Bongos. See Nilitic Group.

Botocudos. South American Indians on eastern seaboard of Brazil.

Brahui. See Baluchis.

Brazilians. White natives of Brazil, mainly of Portuguese descent, but with a considerable admixture, in many districts, of Indian and negro blood.

Bretons. Natives of Brittany, descended from a short, round-headed, dark race, generally called Celtic, but perhaps pre-Aryan.

Bribris. South American Indians of Costa Rica.

Britons. (1) The ancient Britons were a Celtic race, whose remnants are still to be found in the Welsh (*q.v.*). They attained a considerable degree of civilisation under the Roman conquerors, and adopted Christianity The Anglo-Saxon conquest of Britain drove most of them back into Wales, Cornwall, and other outlying portions of the island, whilst the remainder were either destroyed or assimilated. (2) In the wide modern sense, Britons are the white citizens of the British Empire.

Bugis or **Buginese.** Natives of Boni in Celebes; a primitive Malay race.

Bulalas. See Lake Chad Group.

Bulgars. A branch of the Finns (*q.v.*), who were originally settled on the banks of the Volga. In the sixth century they crossed the Danube and conquered the modern Bulgaria, then occupied by the Slavonic Slovenians (*q.v.*). A speedy fusion took place between the Slovenians and the Bulgars, who adopted the language and customs of the former, and rose to greatness as a Slav power. In the ninth and tenth centuries they ruled the greater part of the Balkan Peninsula, and warred successfully with the Byzantine Empire, which, however, subjected them in 1019 under Basil II., "the slayer of the Bulgarians." Later they passed under the Turkish rule, and ceased to have an independent national existence down to the nineteenth century.

Bulgarians. Inhabitants of the modern Balkan state of Bulgaria, descended from the Bulgars (*q.v.*) with considerable admixtures of Greek and Turkish blood.

Bulloms. See Temne Group.

Burgundians. An ancient people of Teutonic race (High German), who were originally settled between the Oder and Vistula. In the fifth century they invaded Gaul, where they formed the first kingdom of Burgundy, between the Aar and the Rhone. There were many later Burgundian kingdoms and duchies, of which the last and most famous was that of Charles the Bold, annexed to France in 1477. The Burgundians are now French subjects, but still show traces of their Teutonic origin.

Buriats. The Western or Siberian branch of the Mongol stock of the Northern Mongolic family. They occupy the vicinity of Lake Baikal. The majority are nomad pastors, but some have taken to agriculture. A peace-loving, but lazy and drunken people; they include various tribes, such as the Barguzins, Selengese, Idinese, Kudaras and Olkhonese.

Burmese, or **Burmans.** A short-statured, thick-set and flat-featured people, approaching the Chinese type, the principal race of the Indo-Chinese stock of the Southern Mongolic family. They inhabit Burma—now a British possession—and are excitable, turbulent, and given to dacoity, or highway robbery. They make good

farmers and shopkeepers, but are not warlike or methodical.

Burus. See INDONESIANS.

Bushmen. A nomadic Negro race of South Africa, who stand at the lowest stage of human culture. They are probably the aborigines of South Africa, where they have been dispossessed by Hottentots and Bantus from the north. They are thin and wiry, of small stature, not unlike the Hottentots in colour and features. They live by hunting, and possess a curious mythology. Their artistic powers, comparable to those of Palæolithic Man, are shown in the remarkable rock-drawings on the walls of their caves.

Calchaquis. South American Indians, in Plate River district.

Cambojans. Natives of Cambodia, Mongoloid approaching Caucasic type.

Canaanites. One of the main branches of the great Semitic family, inhabiting Palestine and the Mauritanian sea-coast in ancient times, including Jews, Phœnicians, Carthaginians, Moabites, Amorites, Idumæans and Philistines (*q.v.*). A fierce and warlike people, with a remarkable genius for religion, which has greatly influenced the modern world.

Canadians. White natives of Canada, of mixed French and Anglo-Saxon descent.

Caribs. South American Indians, formerly occupying the West Indian Islands, and now the shores of the Caribbean Sea, including Macusi, Bakairi, Akawai, Arecuna, and Rucuyenne tribes. They are strongly built, warlike and fierce, but honourable. The term cannibal is supposed to be a corruption of their name based on their habits.

Carthaginians. Natives of one of the great empires of the ancient world, which was founded at Carthage, near the modern Bizerta, by Phœnician colonists in the ninth century B.C., and was destroyed by Rome in 146 B.C. Carthage was the great rival of Rome as a Mediterranean power. Its inhabitants belonged to the Canaanite stock of the Semitic family, and were a nation of traders, cruel and gloomy in temperament, worshippers of Moloch with human sacrifices. Though in Hannibal they produced one of the greatest of generals, they were not warlike, and trusted chiefly to mercenaries, wherefore they fell.

Catalans. Natives of North-east Spain, mostly of Gothic descent, and still distinct from other Spaniards in language and costume. Honest and enterprising, turbulent, and intensely devoted to liberty.

Caucasians. One of the families of Caucasic Man, inhabiting the mountainous region of the Caucasus, and divided into southern, western, and eastern branches [see GEORGIANS, CIRCASSIANS, CHECHENZES, LESGHIANS]. They include a great number of different tribes, who seem to have settled there from the earliest historical times. Some of these, the Melanochroid highlanders, like the Georgians, Circassians, and Lesghians, present an almost ideal standard of physical beauty, whilst others are squat and ungainly. Some ethnologists see in the Caucasus the primitive home of the Aryan family, from whom the Caucasians would, on this view, be an offshoot. The Ossets (*q.v.*) are certainly Aryan. The Caucasians are very warlike, and struggled till quite recently with success against the Russian domination.

Caucasic. One of the four great divisions of the human race. Type, white-skinned, square-jawed (orthognathous), skull between broad and long (mesocephalic), hair soft, straight, or wavy; in intelligence, enterprise, and civilisation, much superior to other divisions.

Cayugas. See IROQUOIAN.

Celts. See KELTS.

Chakhars. A branch of Eastern Mongols, settled on the south-east boundary of the Desert of Gobi.

Chaldæans. See BABYLONIANS.

Chamorros. Aborigines of the Ladrone Islands, so named from their thievish propensities. A branch of the Oceanic Mongolic family, probably allied to the Formosans (*q.v.*).

Chancas. See INCAS.

Chaudors. A nomad tribe inhabiting the steppes east of the Caspian and south of the Oxus. See TURKOMANS.

Chapogirs. See TUNGUSES.

Charruas. An extinct race of South American Indians in South Brazil, peculiar for their extremely black colour with lank hair.

Chechenzes. A branch of the Eastern stock of the Caucasian family, inhabiting the northern slopes of the Eastern Caucasus. Their chief tribes are Ingushis, Kishis, and Tushis.

Cheremisses. See FINNS.

Cherokees. A brave and warlike tribe of North American Indians. See IROQUOIAN.

Cheyennes. See ALGONQUIAN.

Chibchas. South American Indians of Bogota.

Chichimecs. See NAHUANS.

Chickasaws. See MUSKHOGEANS.

Chilians. White natives of Chili, of Spanish descent, with a mixture of Araucanian Indian blood.

Chinese. One of the most numerous races of the world, inhabiting the Chinese Empire. They are a stock of the Southern Mongolic family, and it is thought by some ethnologists that they are descended from the Mongolic Akkads (*q.v.*) of Mesopotamia. There is a remarkable uniformity in the physical type presented by the Chinese in all climates and environments; they are the most homogeneous of great peoples. They are yellow-skinned, short in stature, with obliquely set eyes, high cheek-bones, long skulls, and broad faces, with slight prognathism. They possess an ancient and highly organised civilisation, which is characterised by its conservatism and slowness to accept new ideas—so different in this from the Japanese. The Chinese are naturally frugal, industrious, and patient; they are excellent agriculturists, and very gregarious; they despise war, but make excellent soldiers when drilled by Europeans or Japanese. They are eminently literary, and have a high system of morality. There are many local varieties, such as the Puntis of the Canton districts, the Hakkas of Swatow, the Hoklas of Fohkien, the Dungans (*q.v.*), which need not be farther particularised.

Chinooks. A nearly extinct tribe of North American Indians on the Columbia River, on whose language is based the Chinook jargon, or traders' Lingua Franca of British Columbia.

Chins. See SINGPHOS.

Chippewayans. See ATHABASCAN.

Chiquitos. South American Indians of Upper Paraguay basin.

Chiriguanos. South American Indians of Bolivia.

Chitralis. Natives of Chitral, in the Hindu Khush, rough, hardy hillmen, closely allied to the Kafirs (*q.v.*) of Kafiristan.

Chocos. A tribe of South American Indians of Matto Grosso.

Choktaws. See MUSKHOGEAN.

Chontals. Central American Indians of Nicaragua.

Chols. See MAYA-QUICHE.

Chorasses. See KALMUKS.

Chorotegans. Central American Indians of Nicaragua.

Chukchis. A Northern Mongolic race of North-east Siberia, closely akin to the American Eskimo in features and customs. They are of high character and very independent, but at a low stage of civilisation, and live by reindeer-breeding and hunting. A branch of the Chukchis, differing mainly in language, is known as the Koryaks.

Chunchos. South American Indians on tributaries of Beni River in Peru.

Cimbebas. See BASIMBA.

Circassians, or **Tcherkesses.** A race of Caucasian mountaineers, formerly inhabiting the Black Sea coast between Anapa and Pitzunta, of high physical type, who maintained an unavailing struggle against Russia till 1864, when their subjugation was followed by a wholesale emigration of the Circassian tribes to the Turkish Empire. Allied to them are the Abkhasians and Kabards (*q.v.*).

Colombians. White natives of Colombia, in Central America, mostly of Spanish descent, with an admixture of Indian and negro blood.

Comanches. See SHOSHONEAN.

Conibos. South American Indians of Peru.

Copts. Christian descendants of the ancient Egyptians (*q.v.*), of middle stature, slender limbs, and pale complexion, who inhabit Egypt, and preserve the language and customs of the last period of ancient Egyptian civilisation. They are essentially townsmen, clerks, or artisans.

Coras. See OPATA-PIMA.

Cornish. A race of Brythonic or P Celts, akin to Welsh and Bretons, inhabiting Cornwall in earlier times; now absorbed in English stock. Their language became extinct in seventeenth or eighteenth century. The crossing of the Cornish Celts with Anglo-Saxons has given birth to a singularly fine race of hardy fishermen and miners.

Corsicans. The aborigines of Corsica were probably a Western Hamitic race, allied to the Ligurians (*q.v.*). They were followed by Ionian invaders, and in turn by Carthaginian, Roman, Vandal, Hun, Gothic, Saracenic, and Italian conquerors, each of whom has added something to the mixture of blood in the modern Corsicans, a turbulent, lawless, and warlike race (now belonging to France), whose greatest son was Napoleon.

Costa Ricans. White natives of Costa Rica, in Central America, mostly of pure Spanish descent.

Crees. See ALGONQUIAN.

Creek Indians. See MUSKHOGEAN.

Creoles. Persons born in past or present French, Spanish, or Portuguese colonies, of pure European descent.

Cretans. An ancient race of prehistoric culture [see MYCENÆANS]; in modern times chiefly Greek, mixed with Turk.

Croats. Inhabitants of Croatia, now mainly of Slavonic race, mingled with an earlier short, dark race of non-Aryan descent. One of the motley races of the Austrian Empire. They are warlike, turbulent, and eager for independence.

Cro-Magnon. A prehistoric race settled in the Vezere district of France, which may be taken as the primitive type of Caucasic Man. It is only known by a few skulls and other relics, and probably dates back to the Glacial Period. *c*

Crow Indians. See SIOUAN.

Cymry. See WELSH.

Czechs, or **Bohemians.** The most westerly branch of the Slavonic stock of the Aryan family, now occupying Bohemia, Moravia, and other parts of Austria. They are closely allied to the Slovaks of Hungary. They migrated from the Upper Vistula district to the modern Bohemia in the fifth century. Long an independent kingdom, and a bulwark of Christendom against the Turks, Bohemia passed to Austria in 1526. During the last century there has been a great recrudescence of the Czech nationality and language. The Czechs as a race are very musical and artistic.

Daflas. A Tibetan race inhabiting the northern border of Assam.

Dahomans. See EWE.

Dakotas. See SIOUAN.

Dalmatians. A Southern Slavonic race, crossed with Gothic blood. A fine race of hardy seamen, they manned the Venetian fleets, but now belong to Austria.

Damaras, or **Hau-Khoin.** See HERERos.

Danakils, or **Afars.** An Eastern Hamitic race settled in the vicinity of Obock, between Abyssinia and the Red Sea. They are nomad pastors and fishermen, well-built, and slender.

Danes. Natives of Denmark, belonging to the Scandinavian stock of the Aryan family. Denmark was originally inhabited by the Angles, Saxons, and Jutes, who colonised England. On their departure, the Danes from Zealand settled on the deserted lands, and there reared the kingdom which still exists. The early Danes were brave warriors and skilled seamen, who for a time ruled Saxon England under Canute. Their descendants, of comparatively pure blood, preserve these characteristics, and are also industrious agriculturists.

Dards. A warlike and hardy race of Aryan descent, inhabiting the mountainous country around Gilgit, in North-west India, of whom the Hunzas and Nagars are the chief tribes.

Dargos. See LESGHIANS.

Delawares. A North American Indian race with whom William Penn dealt in the 17th century: now fairly civilised. See ALGONQUIAN.

Didos. See LESGHIANS.

Dinkas. See NILITIC GROUP.

Dogras. An Aryan race in the Punjab, between the Chinab and the Ravi, who contribute excellent soldiers to the British Native Army.

Dorians. See HELLENES.

Dravidas, or **Dravidians.** Indigenous non-Aryan inhabitants of South India, including the Telingas or Telugu of the Nizam's Dominions, the Tamils of Karnatic and Ceylon, the Kanarese of Mysore, the Malayalim of Malabar Coast, those wild hunters the Gonds of Vindhya Hills, the Sinhalese of Ceylon, and perhaps the Veddahs,

(*q.v.*). A Mongoloid race originally, which has been assimilated to the Caucasic type by long intermixture of blood.

Druses. A brave, handsome and industrious white race, who have been settled in the Lebanon district of Syria for at least 800 years, and owe their unity to the possession of a special religion. Their origin is uncertain, but they are probably of a mixed stock, to which Arabs, Kurds, and Persians have all contributed. They are fair-haired and of light complexion. They are very warlike, have always preserved their independence against the Turks, and are the inveterate enemies of the Maronites (*q.v.*).

Dungans. Southern Mongolic inhabitants of Zungaria, between Tian-Shan and Altai. Allied to Chinese (*q.v.*).

Durbats. See KALMUKS.

Duranis. See AFGHANS.

Dyaks. The aborigines of Borneo, probably akin to the Malays (*q.v.*), whom they resemble physically, though of greater average stature. They are active and warlike, and formerly indulged in the practice of head-hunting, now dying out. The Sea-Dyaks were bold and inveterate pirates. They possess a considerable degree of indigenous civilisation, and their moral character is very fine.

Easter Islanders. (1) See POLYNESIANS. (2) Easter Island once possessed an older race of inhabitants, now extinct, who have left very remarkable traces in the shape of numerous colossal statues, thin-lipped and disdainful, standing on platforms of Cyclopean masonry, as well as many stone houses with thick walls, painted on the inside. Nothing farther is known of their race or history.

Ecuadorians. White natives of Ecuador, in South America, of Spanish descent; noted for their laziness and political instability.

Edomites. See IDUMÆANS.

Egbas. See YORUBAS.

Egyptians. (1) The ancient inhabitants of Egypt—known to them as Khem, the Biblical Mizraim—who reared one of the oldest and most important civilised states of the ancient world. The aborigines of Egypt were apparently a Palæolithic branch of Ethiopic Man, allied to the modern Bushmen. They were dispossessed and practically exterminated, probably about 7000 B.C., by a slender, fair-skinned race of European type, belonging to the Hamitic family, and resembling the modern Berbers (*q.v.*) in many respects. These were probably the same as the ancient Libyans (*q.v.*). Later this race was modified by the introduction of a Semitic element, partly from Syria, partly from the Phœnician conquerors who founded dynastic rule in Egypt under Menes, between 5000 and 4000 B.C. Their later history is written on their imperishable monuments, and need not be summarised here. In later times the Egyptian racial type was modified by Greek and Roman influence. The ancient Egyptians were highly skilled in agriculture and engineering, warlike but not aggressive, and with a highly developed literature and religion. (2) The modern Egyptians are partly descended from the ancient Egyptians, whose racial type as represented on the monuments is still to be found in purity, mingled with Bedouin Arabs, Turks, Syrians, and other races. See COPTS and FELLAHIN.

English. Natives of England; used in a wider sense as equivalent to citizens of the British Empire [see BRITONS, ANGLO-SAXONS]. The English people are a Low German branch of the Teutonic stock of the Aryan family, with a faint Celtic element derived from the primitive Britons, a strong Scandinavian element especially in the north-east), derived from the invading Danes and Norsemen in the ninth to eleventh centuries, and a considerable Norman element—Norse modified by French culture. The typical Englishman is white-skinned and fair-haired, belonging to the Xanthochroi, but there are many deviations due to modifying influences. The race is eminently warlike and aggressive, and makes the most successful colonisers known to the world.

Erie Indians. See IROQUOIAN.

Erse. See IRISH.

Eshi-Kongo. A semi-civilised race of Bantu Negroes, belonging to the ancient Kongo Empire, now Portuguese West Africa.

Eskimos, or Innuits. An Arctic aboriginal race, now inhabiting Greenland and the northern coasts of the American continent. They are nomadic, live by hunting and fishing, and are inured to extremes of cold. They are very broad-headed, fat, and of short stature, with flat quasi-Mongolic features. They seem to occupy a place midway between the North American Indian and the Mongolic type, and there is some reason to suppose that they represent a prehistoric Mongoloid incursion from Northern Asia, or perhaps from Indo-Malaysia.

Esthonians. A branch of Baltic Finns (*q.v.*) settled in Esthonia, and possessing an ancient ballad literature and mythology.

Ethiopians. An ancient Berber tribe, settled in Egypt at least 5,000 years ago, now represented by the fair Berbers of Mauritania. Homer called them "blameless," because he knew so little about them. See NUBIANS.

Ethiopic. One of the four great divisions of the human race, occupying Africa, Australia, and many islands of the Eastern Ocean. Its members are typically black-skinned and woolly haired, with projecting jaws and broad skulls.

Etruscans. An ancient Italian people, inhabiting Etruria in North Italy in pre-Roman times. They probably consisted of an aboriginal Pelasgian (*q.v.*) race, modified by a dominant race of invaders, who may have been of Mongolic type, or perhaps akin to the Hittites (*q.v.*). The Etruscans may be classed as Hamitic. They had a distinctive civilisation, and made great progress in art, of which many monuments remain. The Etruscan confederation, of which Veii was the chief city, long warred with the rising power of Rome, under whose dominion it fell in the fourth century B.C. Families of undoubted Etruscan descent are still found in North Italy.

Europeans. Natives of Europe, mainly Aryan.

Ewe. A group of Sudanese Negro tribes of Guinea Coast. The best known are the Dahomans, or natives of the ancient kingdom of Dahomey, on the Slave Coast. Of small stature, but robust and warlike, they are noted for their great human sacrifices and their employment of female warriors, or "Amazons." Now under French rule. The Togos are also an Ewe tribe.

Fans. A race of powerful and aggressive warriors, who intruded into Gaboon-Ogoway district about the middle of the nineteenth



AN ARAB VILLAGE ON THE BORDERS OF EGYPT

century; possibly related to Azandeh or Fulahs (*q.v.*). Cannibals, but otherwise of higher intellect and morality than the average Negro, from whom they differ in physical type.

Fantis. See TSHI.

Fellahin. The labouring peasantry of modern Egypt, industrious but not warlike, descendants of ancient Egyptians, with a mixture of Syrian and Arab blood.

Felup. A group of Sudanese Negro tribes on Casamanza and Cacheo estuaries.

Fertits. See NILITIC GROUP.

Fijians. Natives of Fiji, belonging to the Melanesian stock of the Oceanic Negro family. Formerly ferocious cannibals, they are now civilised.

Filipinos. See PHILIPPINES.

Fingus, or **Ama-Fingu.** Bantu Negroes of the Kafir division in South-east Africa, regarded by Zulus and Ama-Xosa as an inferior race.

Finno-Ugrian. A stock of the Northern Mongolic family, including (1) Ugrian or Siberian Finns, of which the chief races are Soyots, Ostyaks, Samoyedes, Voguls, Permian Finns, Siryanians, and Magyars (*q.v.*); (2) European Finns, divided into: (*a*) Volga Finns, (*b*) Baltic Finns.

Finns. The Finns proper are the inhabitants of Finland, between Russia and Norway. They are a Northern Mongolic race, of Finno-Ugrian stock, who are supposed to have originated beside the head waters of the Yenisei River. They entered Finland about the end of the seventh century and established themselves there, being afterwards annexed, first by Sweden and then by Russia. They are a strong, hardy race, who make excellent seamen, with round faces, fair hair and blue eyes. They are honest, highly moral and religious, and possess a remarkable ballad and folk-tale literature, of which the Kalevala is the chief example. The Baltic Finns of allied race include Esthonians, Karelians, Lapps, Livonians and Tavastians (*q.v.*). The Volga Finns are another branch of the same people, whose chief tribe was the ancient Bulgars (*q.v.*). The Mordvins and Cheremisses, still settled on the banks of the Volga in small communities, belong to the same race.

Flathead or **Salish Indians.** A mixed race of North American Indians, in British Columbia and Montana.

Flemings, or **Flemish.** The inhabitants of Flanders, now divided between Belgium and Holland, descended from Belgic tribes settled there in Cæsar's time. They are a Low German branch of the Teutonic stock. They are an industrious and honest, though phlegmatic, people, who played a great part in mediæval commerce.

Formosans. Natives of Formosa, of mixed Malayan and Negrito descent. They were divided into three classes by the Chinese invaders: the Pepohwan, civilised agriculturists, under Chinese rule; Sekhwan, settled tribes who acknowledged Chinese rule; and Chinhwan, the wild savage tribes of the mountains, who waged unceasing war against the invaders. The island has now passed under Japanese dominion. The Formosans in general approximate to the Malay type, but are more sturdily built.

Fox Indians. See ALGONQUIAN.

Franks. A confederation of Germanic tribes, dwelling on the Middle and Lower Rhine in the third century. They belonged to the High German branch of the Teutonic stock. In the third and fourth centuries they began to invade Gaul, where they established a Frankish kingdom under Clovis (481–511), who adopted Christianity. This later developed into the modern State of France. The Franks were a brave and stalwart race of warriors, with blue eyes and long flowing hair, well-built and large-limbed. They were a nation of democratic fighting men, who practised agriculture in the intervals of war.

French. The inhabitants of modern France, a race of mixed origin. Among their ancestors are the Celtic Gauls, the Teutonic Belgae and Franks, the Hamitic Iberians, the Romans, and the Scandinavian Normans (*q.v.*). They are probably the quickest-witted and most intelligent race of modern Europe. Extremely warlike and aggressive in earlier days, they are now displaying greater devotion to the arts of peace, especially agriculture. Paris has long been the chief centre of ideas in Europe.

Frisians. A Teutonic race of Low German stock, living between Scheldt and Weser in Roman times, now belonging to the Netherlands.

Fuegians. Natives of Tierra del Fuego in South America, savages of a very low physical and mental type.

Fulahs. A warlike and predatory race of Saharan Hamites, formerly occupying small communities throughout the West and Central Sudan, who over-ran the native Hausa States about 1800-1810, and founded the empire of Sokoto.

Furs. See NUBA GROUP.

Ga. A Sudanese Negro group in Guinea, including Accras and Krobos.

Gaels. See HIGHLANDERS.

Gaikas and **Galekas.** See XOSAS.

Galchas. Highlanders of Hindu Kush and Turkistan, of Iranian descent.

Gallegos. Natives of Galicia, in Spain, of Gothic descent.

Gallas. A branch of Eastern Hamites, occupying Gallaland, south of Abyssinia. The finest people in all Africa, strongly built, of a light chocolate colour. They are distinguished for their energy and honesty. They are divided into numerous tribes, and are inveterate foes of the Somalis.

Gallinas. Sudanese Negroes of Sierra Leone.

Garamantes. An ancient Hamitic race inhabiting the neighbourhood of Tripoli in Roman times.

Garhwalis. Tibetan natives of Garhwal, on the border of Tibet.

Gascons. Natives of Gascony, of Basque descent, modified by Frank and French blood. They are notorious for their lively imagination and boasting "Gasconades."

Gauchos. A mixed race of Spanish and Indian descent, admirable horsemen, who are the chief herdsmen of Uruguay and the Argentine Republic. See PUELCHES.

Gauls. In Cæsar's time the Gauls occupied the central part, and formed the chief race, of modern France, which, after them, was called Gaul. They probably belonged to the Brythonic division of the Celtic stock, being closely allied to the ancient Britons, as well as to the modern Welsh and Bretons, who respectively represent

the remnants of the primitive Celtic population of England and France. It is possible that there was a still earlier Celtic element in France, corresponding to the Goidelic division of the Celtic stock. Mingled with the Celtic element in the Gauls were traces of the earlier Iberian and Ligurian aborigines (*q.v.*). The Gauls were blue-eyed, fair-haired and long-headed, in distinction to the older dark-eyed, black-haired, round-headed type, which is more commonly known as Celtic, but is probably characteristic of an older race. Under Roman rule the Gauls acquired a considerable degree of civilisation. They were dispossessed in the decline of the empire by Franks, Burgundians and Visigoths (*q.v.*), but became in part ancestors of the modern French.

Georgians. The chief race of the Southern Caucasus, a fine athletic race of pure Caucasic type, noted for the personal beauty of its individuals. The Georgians were formerly fierce and warlike, but under Russian rule have become industrious in the arts of peace. They are noted for a passionate love of music. They first appear in history in the time of Alexander the Great, when they were already settled in their mountains. The Georgian kingdom had an independent existence for about seven centuries, but suffered much from Mongolian and especially Turkish invasions. Georgia and Circassia furnished the majority of white slaves for Turkish harems. In 1801 Georgia was annexed to Russia. Other important South Caucasian races are the Imerians and the Mingrelians, who closely resemble the Georgians in physical characteristics, but have displayed less aptitude for civilisation.

Gepidæ. See GOTHS.

Getæ. An ancient race of Thracian (*q.v.*) descent, who settled in Wallachia in the fourth century B.C. They were warlike and turbulent, but were conquered by Trajan and incorporated in the Roman Empire. In later centuries they appear to have been fused with the Goths (*q.v.*).

Germans. The Germans first appear in history as a multitude of independent and warlike tribes living amongst the dense forests which stretched in Roman times from the Rhine to the Vistula. They belonged to the Teutonic stock of the Aryan family. They were a tall and vigorous race, with long, fair hair and fierce blue eyes, who delighted in war and the chase. Their democratic social organisation has greatly influenced all Teutonic history; their love of liberty was a passion. At an early period they were divided into High and Low Germans, differing in type, according as they inhabited the central and southern portions of modern Germany or the low-lying lands towards the North Sea and the Baltic. The chief races of the former were the Goths, Franks, Burgundians, Swiss, Swabians, Austrians; of the latter, Saxons, Angles, Jutes, Frisians, Flemings, Batavi—from whom the modern English and Dutch are descended, whilst the High Germans represent the modern Germans. These are a very enterprising, thorough, and industrious race, alike in war and peace, and have thus given birth to one of the greatest Powers of the modern world.

Ghilzais. See AFGHANS.

Gilyaks. A Siberian Mongolic race of Saghalien.

Gipsies. A nomadic race, which was first described as appearing in Europe in the fifteenth century, and is now found in nearly all civilised countries. At first they were believed to come from Egypt, and their name is a corruption of "Egyptians." They have a dark, tawny skin, black hair and eyes, are small-handed and often very handsome, and live by tinkering, basket-making, fortune-telling, and other arts which can be practised on the road. Their chief characteristic is independence and love of a wandering life. Their origin is still uncertain; though their language, Romany, is known to be a corrupt dialect of Hindi, which supports the older theory that they are of Indian descent. A later and well-supported theory is that they are the descendants of the prehistoric race which introduced metal-working into Europe. On this view they must have existed in Europe from time immemorial, without being noticed in literature. The gipsy problem still awaits solution.

Goajiris. See TUPI-GUARANI.

Golden Hordes. See KIPCHAKS.

Gonaquas. Hottentot Negro half breeds on Kafirland frontier.

Goads. See DRAVIDAS.

Goths. One of the chief Teutonic races of ancient times, who played a great part in European history from the third to the eighth century, but have left no descendants as a distinct race. They first appear in history in the third century, as a confederation of German tribes who had made a settlement in the district north of the Lower Danube. They soon split up into two distinct peoples, the East Goths or Ostrogoths, and the West Goths or Visigoths. There was a third and unimportant race of Mœsogoths, settled in Mœsia, for whom Ulfilas made his famous translation of the Scriptures. The Goths were extremely warlike and aggressive, a typical race of German warriors. The Ostrogoths remained north of the Danube, where they were subjugated for a time by the Huns of Attila. Recovering their independence, they invaded Italy, destroyed the Western Empire, and established a new kingdom under Theodoric. This was conquered by the Byzantine Narses in 552, after which the Ostrogoths disappear from history. The Visigoths, unwilling to submit to the Huns, crossed the Danube and settled in the Roman Empire, where they furnished many recruits for the army. In 395 they rebelled, and under Alaric invaded Italy and besieged Rome. Afterwards they founded kingdoms in the south of Gaul and in Spain, where the Visigoths ruled till the invasion of the Saracens, and where their blood is still found incorporated with that of the older races. A branch of the Ostrogoths which settled in the Crimea preserved its nationality and language down to the sixteenth century, or even later. The Bastarnæ, Gepidæ, and perhaps the Vandals (*q.v.*), were branches of the Gothic race.

Greeks. (1) For ancient Greeks, see HELLENES. (2) The modern Greeks are partly descendants of ancient Greeks, with a large admixture of Albanian, Wallachian and Slavonic elements. They are great in commerce, but not warlike.

Griquas. A race of Hottentot-Dutch half-breeds, also known as Bastaards, in Griqualand.

Guaicuris. Central American Indians of Lower California.

Guanches. Aborigines of Canary Islands: so-called "White Africans," probably of Berber Hamitic stock.

Guatemalans. White natives of Guatemala, in Central America, of Spanish descent.

Guatusas. Central American Indians of Costa Rica.

Guebres. See PARSEES.

Gujeratis. Natives of Gujerat in Western India, Aryans of Hindu stock.

Gurkas. The dominant race of Nepal, who claim a Hindu (Aryan) origin, but have probably acquired a Mongoloid tinge from inter-marriages. They are of small stature, yet eminently warlike, and supply some of the best troops to our Indian Army.

Gypsies. See GIPSIES.

Hadendowas. See BEJAS.

Haidas. North American Indians in British Columbia.

Hamites. A family of Caucasic Man, belonging to the Melanochroid or dark type, ranging in colour from white to brown, and even black; hair soft, straight or wavy; skull, medium (mesocephalic); square-jawed (orthognathous); generally of fine physical development. Divided into Eastern Hamites—*e.g.*, Somali, and Western Hamites—*e.g.*, Berbers and Basques. Closely related to Semites.

Hau-Khoin. See HERERos.

Hausas. The most important Sudanese Negro race of Northern Nigeria. Keen traders, physically well developed, they make excellent soldiers, and are largely utilised for this purpose by their British rulers. The Hausa States were over-run by the Hamitic Fulahs (*q.v.*) about 1800–1810, and now form part of the Empire of Sokoto. The Hausa language is the common medium of commerce in the Central Sudan.

Hawaiians. Natives of Hawaii, of brown Polynesian stock, akin to Maoris. A remarkably fine and handsome race, steadily decreasing since contact with European civilisation and diseases. Peculiarly subject to leprosy.

Haytians. Natives of the negro republic of Hayti, descended from negro slaves imported by the earlier Spanish and French owners, who freed themselves at the time of the French Revolution. The Spanish portion afterwards formed the Dominican Republic in the eastern part of the island. Of mixed Bantu and Sudanese Negro descent, with a cross of white blood.

Hazaras. Mountaineers of N.W. Afghanistan, a vigorous and turbulent race of Mongolo-Persian descent, often troublesome to British India.

Hebrews. See JEWS.

Hellenes. Inhabitants of ancient Greece, which they called Hellas. The Proto-Hellenes, or aborigines, were probably of Pelasgian origin, belonging to the Western Hamitic family, of whom the ancient Cretans and Mycenæans (*q.v.*) may represent the ancestral type. These were followed by the true Hellenes—Achæans or Argives—divided into three main branches—Dorians, Ionians, and Æolians. Later they were divided into many local states, such as Athens and Sparta. The modern Greeks are in part descended from the Hellenes, crossed with Albanian, Wallachian, and Turkish blood. It is to the Hellenes that we owe the first important developments of civilisation in Europe.

Helveti. Ancient inhabitants of Switzerland in Cæsar's time, probably a German tribe, from whom the modern Swiss are in part descended.

Hereros, or Ovaherero. Bantu Negroes inhabiting the plains of Damaraland, or German South-West Africa. The Damaras or Hau-Khoin are a cross between Hereros and the Hottentot aborigines. A pastoral nation who migrated thither about two centuries ago from the inland districts, and dispossessed the aboriginal Hottentots, now represented by the Namas of Namaqualand, with whom they are perennially at war. Recently they rose against the German authorities, and have given them much trouble. A fine, warlike race.

Highlanders. The Gaelic-speaking inhabitants of Northern Scotland, a branch of the Goidelic or Q Kelts, also known as Gaels. They are descended from the ancient Scots (*q.v.*), who originally migrated from Ireland in the fifth century. One of the finest races of the British Islands, who give them their finest soldiers.

Himyarites. A branch of the Semitic family ("Red Men," whence the Red Sea), formerly occupying Arabia Felix and Abyssinia; they form the main stock of the Abyssinian race. They included the kingdoms of the Minæans and Sabæans, the latter being identified by some with the Biblical Sheba.

Hindus. A stock of the Aryan family, comprising a large proportion of the natives of India, described under the headings of Kashmiris, Punjabis, Rajputs, Marathas, Bengalis, Sindis, Gujeratis, Assamis, etc. The original Hindus entered India—hence called Hindustan—from the north-west at some prehistoric time, and soon became the predominant race in the peninsula.

Hittites. A forgotten but once mighty people of Semitic race, who contested the entry of the Israelites into Canaan, and waged war with Egypt and Assyria for many centuries. Little is known about them, but they seem to have reared a mighty empire between Lebanon and the Euphrates, which endured for more than a thousand years, and was destroyed by the Assyrian Sargon II. in 717 B.C.

Hondurans. White natives of Honduras, of Spanish descent; few in numbers, the population being mostly of mixed blood.

Hor-Soks. A primitive Mongol-Turki race of the Tibetan plateau.

Hottentots, or Khoi-Khoin. The aboriginal Negro inhabitants of South Africa, which they shared with the Bushmen (*q.v.*). Possibly the Bushmen are degraded Hottentots, or the Hottentots are a cross between the Bantus from the north and the Bushmen, who would on this view be the true aborigines. The only surviving race of pure Hottentots are the Namas of Namaqualand: the Damaras, Griquas, Gonaquas, and Koranas, are other races in which Hottentot blood is mixed with that of Bantu Negroes or of Europeans (mostly Boers). The Hottentots are a distinct branch of the Negro family, marked by extremely long heads and high cheek-bones, a brownish-yellow complexion, with other physical peculiarities exemplified in the so-called "Hottentot Venus," and also found in the Bushmen. Their language is peculiar for its unique "clicks," which no European can pronounce, and which

seem to stand between articulate and inarticulate speech.

Hovas. The dominant Malagasy race of Madagascar, of Malay descent, mixed with Bantu Negro blood from Africa. They stand nearest to pure Malays of all Malagasy peoples. The existing French Protectorate was only established after much fighting with the warlike Hovas, who had conquered all the other native tribes.

Huastec. See MAYA-QUICHÉ.

Hungarians. See MAGYARS.

Huns. A nomad race of the Northern Mongolic family, probably of Turki stock, who settled in the neighbourhood of the Volga and the Urals about the dawn of the Christian era. In the fourth century they conquered and dispossessed the Ostrogoths and Visigoths on the Danube. Under Attila, in the fifth century, they invaded Greece and Gaul, and pushed their arms as far as Rome, which was only saved by the diplomacy of the Pope. Their cruel fierceness in war caused their great leader to be known as the Scourge of God. Like the Mongols, they were essentially a race of horsemen, and their "deformed figures and hideous Mongolic faces" added to the terror which they inspired. After Attila's death in 453 the Huns fell to pieces, and soon were absorbed into other nations—especially, perhaps, the Bulgars.

Hunzas. See DARDS.

Hupas. See ATHABASCAN.

Hurons, or **Wyandots.** A North American Indian race of Iroquoian stock, formerly inhabiting the shores of Lake Huron.

Hyksos. A Northern Mongolic race who invaded Egypt and established the dynasty of the Shepherd kings about 2000 B.C.

Ibeas. A Negro race which recently invaded the Cameroons from the East: they bring down ivory from the unexplored interior. Either Bantu, or Sudanese—perhaps connected with the Azandeh (*q.v.*).

Iberi, or **Iberians.** An ancient race of Western Hamites, related to the fair Berbers of Mauritania. The Basques are probably descended from them, and there is good reason for identifying them with the Picts of Scotland and the Irish aborigines.

Ibo. See ABO.

Icelanders. Inhabitants of Iceland, originally Norwegians, who settled there about the end of the ninth century. A typical tall, fair-haired, blue-eyed Scandinavian race. The Icelandic Sagas form the chief part of ancient Scandinavian literature.

Idumæans or **Edomites.** A warlike Semitic race of Canaanite stock, thought to be descended from Esau, who were conquered by the Israelites under Saul and David, and again by Judas Maccabæus in 165 B.C., after which they disappear from history.

Ife. See YORUBAS.

Igorrotes. An industrious agricultural race of the Philippine Islands. Indonesians of Malay descent, with a possible Chinese or Japanese element.

Illinois Indians. See ALGONQUIAN.

Illyrians. A savage piratical race of the eastern Adriatic sea-board, who were conquered by the Romans, and were the last of the Balkan peoples to be civilised. Probably the modern Albanians are descended from them, and they were among the first Aryan immigrants to Europe.

Ilocanos. A Malay race of the Philippine Islands.

Imerians. See GEORGIANS.

Incas. The chief of the six Indian races, including the Quichuas and the warlike Chancas, which formerly occupied the central mountain-region of Peru. The Incas became the dominant race about 1000 A.D., and built up a vast and peaceful civilisation, in which a purely socialistic government was successfully administered. This Inca Empire was destroyed by the Spanish under Pizarro in 1533, but the Inca Indians still survive as a race in Central Peru, where they are known as industrious and honest agriculturists.

Indians. Native races (1) of India; (2) of North, Central, and South America.

Indo-Chinese. A section of the Southern Mongolic family, inhabiting the countries between India and China.

Indo-European, Indo-German. See ARYAN.

Indonesians. The light-coloured, non-Malay inhabitants of the Eastern Archipelago and South Sea Islands, who are of Caucasic type, and are mostly brown-skinned Polynesians (*q.v.*). They also include the Batjans of Batjan I., the Burus, Korongui, and Suvu of the Malay Archipelago, and the Mentawey Islanders (*q.v.*).

Ingushis. See CHECHENZES.

Innuits. See ESKIMOS.

Ionians. (1) One of the three main Hellenic races of ancient Greece. (2) Greek inhabitants of the coast districts and islands of Western Asia Minor, forming the Ionian League, who passed in the sixth century B.C. under the Persian sway.

Iowa Indians. See SIOUAN.

Iranians. Ancient inhabitants of the Asian plateau bounded by the Indus, the Tigris, and the Hindu Kush. A stock of the Aryan family, now including Persians, Afghans, Baluchis, Kurds, and Armenians (*q.v.*).

Irish. (1) The aborigines of Ireland, probably Iberians (*q.v.*). (2) The later Erse-speaking inhabitants of Ireland, a branch of the Goidelic or Q Celts. (3) Modern inhabitants of Ireland, mostly Celtic, but largely mixed with Teutonic elements in the north.

Iroquoian. One of the families of North American Indians, including the Iroquois, or "Six Nations," who comprised the Mohawks, Oneidas, Onondagas, Senecas, Tuscaroras and Cayugas; the Hurons, or Wyandots, including the Eries, and the Cherokees. Their territory was Upper Canada, round the great lakes, New York, and the Virginian Highlands, and they played a large part in the Franco-British warfare of the eighteenth century. They are now few in numbers and confined to Indian Reservations in the U.S. and Canada.

Israelites. See JEWS.

Italians. (1) Ancient inhabitants of Italy, of Ligurian stock, probably Eastern Hamites, related to the Pelasgians [see LATINS and ROMANS]. (2) Modern Italians, mostly of Latin stock, crossed with Teutonic (Gothic and Lombard) blood.

Italic. A stock of the Aryan family, including ancient and modern Italians (with ancient Romans), modern French, Spanish, Portuguese, and Roumanian, with Latin (Spanish and Portuguese) Americans.

Jallonke. See MANDINGAN.

Jangalis. An aboriginal Indian tribe, in-

habiting the forest district north of Cuttack—the most primitive race in all India. Perhaps an early Dravidian (*q.v.*) stock.

Japanese. A race of the Northern Mongolian family, probably originating in Korea, whence they spread to Japan and dispossessed the Ainu aborigines, about the dawn of the Christian era. The most enterprising and civilised people in Asia, often called "the English of the Far East." They possess a singularly high standard of honour and patriotism, which was the main factor in their recent victory over Russia, and they are eminently warlike, besides producing industrious agriculturists and enterprising traders. Of short but sturdy stature, white skin and yellow or sallowish complexion, oblique eyes, black hair.

Jats. A numerous agricultural race of the Punjab in North-west India. They are probably of an Aryan stock, but ethnologists disagree as to their history, assigning them ancient Scythian invaders, the Rajputs, or the Gipsies, for ancestors.

Javanese. A Malay race inhabiting Java, where they dispossessed the Negrito aborigines [see KALANGS] in prehistoric times. The Sundanese and Madurese are allied tribes, possessing parts of the island of Java, now under Dutch rule.

Jebus. See YORUBAS.

Jews, Hebrews, or **Israelites.** The most important of Semitic races, of the ancient Canaanite stock. The Israelites descended from Abraham, who came from Mesopotamia to Canaan about 2000 B.C.; thence they migrated to Egypt, and returned to take possession of Palestine. Their history is familiar to all from the Bible. After the Roman capture of Jerusalem under Titus, 70 A.D., the Jews—as they were now called—were dispersed though the world, but they have retained their racial characteristics in remarkable purity through long persecutions, and now play a great part in the commerce and finance of nearly all civilised countries, though they have no national unity or racial home.

Jivaros. South American Indians in Peru, on the head-waters of the Amazon.

Jolofs. See WOLOFS.

Jutes. Early inhabitants of Jutland, a Low German branch of Teutonic stock, who invaded England in the fifth century and made the first Teutonic settlement in that country, in Kent.

Kabards. A Western Caucasian race, allied to the Circassians (*q.v.*) and presenting a high standard of physical beauty.

Kabyles. See BERBERS.

Kacharis. Natives of the Terai at the foot of the Himalayas, belonging to the Tibetan stock of the Southern Mongolic family.

Kafirs, or **Kaffirs.** Generic name of the fierce and warlike Bantu Negro races which occupied the south-eastern seaboard of South Africa when Europeans first colonised that country. They then held all the coast lands from the Gamboos to the Limpopo. The southern part (Kaffraria) belonged to the Kafirs proper, and the northern (Zululand) to the Zulus, an allied race, but usually distinguished from the Kafirs, or Ama-Xosa, whose chief tribes are Galekas, Gaikas and Tembus (*q.v.*). Throughout the greater part of the nineteenth century the English settlers were engaged in constant Kafir wars, which resulted in the gradual subjugation of both Kafirs and Zulus.

Kafirs. Fair-skinned mountaineers of Kafiristan, between the Kabul River and Hindu Kush. An offshoot of the Aryan family, thought by some to be descendants in part of the Greek troops with which Alexander the Great invaded India.

Kakhyens. A race of freebooters, inhabiting the northern frontiers of Burma, whence they raid the more civilised agriculturists of the plains and levy blackmail. A Southern Mongolic race of Indo-Chinese stock.

Kalangs. A recently extinct Negrito race of Java, remnants of the aborigines of that island; small, black and woolly-haired, with very retreating forehead and projecting jaws. The most ape-like of human beings, and the nearest approach yet found to the "missing link" between man and ape. They belonged to the Oceanic Negro family.

Kalmuks. The Western Mongol stock of the Northern Mongolic family, scattered through Central Asia, and extending into Southern Russia. Nomadic pastors, owning large flocks and herds, and living in tents on the great steppes, they include the tribes of the Chorasses, Turguts, Khoshots, and Durbats. A large horde of Kalmuks invaded Russia in 1650, and settled there for a century, but in 1771 most of them were expelled, and endured great sufferings on the march to China, so brilliantly described by De Quincy. These were mainly Khoshots and Durbats.

Kamchadales. A Siberian branch of the Northern Mongolic family, inhabiting Kamchatka; a hardy race of hunters and fishers.

Kanakas. A name given to South Sea Islanders, generally by sailors and traders, and especially to Polynesian labourers imported to Queensland.

Kanakas, or **Bakanaka.** Negro aborigines of Angola, probably akin to the Bushmen. Other similar tribes are the Korokas, Kulabes, Kwandes and Kwisses.

Kanarese. Mongoloid aborigines of Mysore in India. See DRAVIDIANS.

Kanembu, Kanuris. See LAKE CHAD GROUP.

Kara-Kalpaks, or **Black Bonnets.** A branch of the Turki stock of the Northern Mongolic family, dwelling on the south-east of the Aral Sea and in the Oxus basin. A pacific pastoral race, dominated by their warlike relatives, the nomadic Kirghiz, and now subject to Russia.

Kara-Kirghiz. See KIRGHIZ.

Karelians. An Eastern branch of Baltic Finns dwelling in the eastern parts of Finland and adjoining provinces of Russia. Probably a Slavo-Mongolic mixture in which the original Mongolic element has been largely eliminated.

Karens. Inhabitants of Burma, of the Indo-Chinese branch of the Southern Mongolic family. Largely Christianised. Formerly oppressed by the Burmans, than whom they are less clever, but more industrious. Agriculturists.

Karons. A Negrito race of New Guinea, of very degraded type, and addicted to cannibalism.

Kargos. See NUBA GROUP.

Kashmiris. Natives of Kashmir, belonging to the Hindu branch of the Aryan family. Of fine physique, but corrupt and untrustworthy.

Kassonké. See MANDINGAN.

Kazaks. See KIRGHIZ.

Kelts, or **Celts.** A stock of the Aryan family which settled in France and the British Islands in prehistoric times. The Gauls and Belgæ of



A RED INDIAN CHIEF AND HIS FAMILY Underwood & Underwood

Cæsar's time and the early Britons represent them. They are divided into two branches, Goidelic and Brythonic Celts, respectively known also as Q and P Celts, from a linguistic peculiarity. The former are represented in modern times by Irish, Manx, and Scottish Highlanders; the latter by Welsh, Cornish, and Bretons. The typical Celt was probably a tall, broad-headed individual, with prominent nose, high cheek-bones, light hair and eyes. The small, round-headed, dark race which is also classed as Celtic, is more probably an earlier Hamitic type, allied to the Basques (*q.v.*).

Khulkas. A nomadic race of Eastern Mongols, occupying the Gobi desert.

Khamtis. An Assamese race—Indo-Chinese stock of Southern Mongolic family—in the Brahmaputra Valley.

Khasis. An Indo-Chinese hill tribe of Southern Mongolic family, in Khasi Hills of Assam.

Khoi-Khoin. The name given to themselves by the Hottentots (*q.v.*).

Khoshots. See KALMUKS.

Kickapoos. See ALGONQUIAN.

Kiowas. A North American Indian race in Oklahoma.

Kipchaks. A Turki race of Northern Mongolic family, settled in eleventh century between Urals and Don. In the middle of the thirteenth century, Batu Khan, a son of Genghiz Khan, led them to conquer all Central and South Russia, where they founded the Empire of the Golden Horde. It was broken up by Tamerlane about 1390, and from its fragments arose the Khanates of Astrakhan, the Crimea, etc., now absorbed by Russia. From the Eastern Kipchaks are descended the Kirghiz (*q.v.*), one of whose hordes is still known as Kipchak. The modern Kipchaks are nomadic, and live by stock-feeding in the steppes of western Turkestan.

Kirantis. A Tibetan race of East Nepal, of Southern Mongolic family.

Kirghiz. A nomadic people of Central Asia, where they occupy the vast steppes which lie to the north of Turkestan. They are descended from the Kipchaks (*q.v*) of the Golden Horde. They form a group of the Turki stock of the Northern Mongolic family. The Kara-Kirghiz, who inhabit the uplands between the Issik-Kul and the Kuen-Lun, are the oldest Turki nomads of whom there is any historical record, and are divided into On and Sol—right and left wings. The Kirghiz proper, who call themselves Kazaks, or "riders," roam from Lake Balkash to the Volga, over the vast level steppes, where they dwell in skin tents and support themselves by breeding camels, horses, oxen, sheep and goats. They live in the saddle, and were formerly a warlike people, who once could put 400,000 fighting men in the field. They are divided into four hordes—Great, Middle or Kipchak, Little, and Inner. They are all now under Russian dominion.

Kishis. See CHECHENZES.

Kissis. See TEMNÉ GROUP.

Kizil-Bashis. Persianised Turkis of Afghanistan, belonging to Turki branch of Northern Mongolic family, who supply the chief commercial classes of Afghanistan.

Kolajis. See NUBA GROUP.

Kolarians. One of the three non-Aryan races to which the primitive inhabitants of India belonged, of the Indo-Chinese stock of the Southern Mongolic family. They entered Bengal from the north-east, and are now represented by a few scattered tribes, like the Santals, Mundas, Kurkus, and Bhils.

Koranas. See HOTTENTOTS.

Koreans. Natives of Korea, belonging to the Koreo-Japanese stock of the Northern Mongol family. They stand midway between Chinese and Japanese, the latter being probably their descendants, and are taller, with lighter complexion and more regular features, than the typical Mongol. Their civilisation is of Chinese origin. They are not warlike, but are prosperous agriculturists.

Korokas. See KANAKAS.

Korungas. See WADAI GROUP.

Koryaks. An Arctic race of North-east Siberia, allied to the Chukchis (*q.v.*).

Krej. See NILITIC GROUP.

Krim-Tartars. See TARTARS.

Krus, or Krooboys. Sudanese Negroes of Liberian Group. Bold and skilful boatmen, employed for that purpose all along the West African Coast.

Kulabes. See KANAKAS.

Kulfans, Kunjaras. See NUBA GROUP.

Kurds. Natives of Kurdistan, partly nomad and pastoral, partly settled and agricultural. A fierce and warlike people, they are much given to raiding, and were utilised by the Sultan to oppress the Armenians. They have settled in Kurdistan from time immemorial, and belong to the Iranian stock of the Aryan family.

Kurile Islanders. See AINUS.

Kurinis. See LESGHIANS.

Kurkus. A broken Kolarian tribe, allied to the Santals of Central India, belonging to the Indo-Chinese branch of Southern Mongolic family.

Kutchins. See ATHABASCAN.

Kwandes, Kwisses. See KANAKAS.

Ladakhis. Natives of Ladakh in the Upper Indus Valley, belonging to the Tibetan stock of the Southern Mongolic family, conquered by Kashmir in seventeenth century.

Lake Chad Group. A group of Sudanese Negro tribes, inhabiting the districts round Lake Chad, including Kanembus, Kanuris, Baghirmis (warlike slave-raiders), Mandaras, Yedinas, Logons, Mosgus, Bulalas, Saras, etc.

Lampongs. Malay inhabitants of Southern Sumatra.

Lamuts. See TUNGUSES.

Landumans. Sudanese Negroes of Senegambia.

Laos. See SHANS.

Lapps. A branch of the Finno-Ugrian stock of the Northern Mongolic family, inhabiting the parts of Norway, Sweden, Finland, and Russia collectively known as Lapland. They are the shortest and broadest-skulled people in Europe. Most of them are nomads, who live by their vast reindeer herds, though some have become settled and live by fishing and hunting. They are closely allied to the Baltic Finns, and like them show traces of a mixture of Caucasic blood.

Lascars. A term applied to sailors of Indian and Malay seafaring races, employed on British vessels.

Latins. The ancient inhabitants of Latium, the district of Central Italy which lay between the Tiber and the Liris, and included the Roman Campagna. They absorbed the earlier allied races of Oscans, Sabines, Samnites, and

Umbrians, and formed a league of thirty cities, which warred for some generations with Rome and then fell under the Roman dominion. Rome itself was originally a Latin city. The ancient population of Italy was divided into three grades: Roman citizens—not necessarily residents in Rome—Latins, and Italians. The Latins are a branch of the Italic stock of the Aryan family

Latin or **Romance Races.** A name often given to the modern races which speak a Romance language derived from Latin, and belong in whole or part to the Italic stock of the Aryan family. They include Italians, French (including Provençals), Spaniards, Portuguese, and Roumanians.

Latin Americans. The white inhabitants of South America, of Spanish or Portuguese descent, and speaking these languages.

Lazes. See GEORGIANS.

Lencan. A group of semi-civilised Central American Indian tribes, including Chontals, Ramas, Payas, Wulwas, and Guatusas.

Lepchas. Natives of Sikkim and Bhutan, belonging to the Tibetan stock of the Southern Mongolic family.

Lesghians. A branch of the Eastern stock of the Caucasian family, inhabiting the Eastern Caucasus. Wild mountain tribes, who long offered an unavailing resistance to the Russian arms under Shamyl (1859). Their chief tribes are the Avars (the most cultivated and powerful), Andis, Dargos, Didis and Kurinis.

Lettic. A stock of the Aryan family, including Letts, Lithuanians and the extinct Pruczi, Borussians, or Old Prussians, from whom modern Prussia takes its name. The Letts and Lithuanians in the fifteenth century formed a united people, inhabiting the south-west of Russia, from Courland to Odessa. Afterwards they passed under Polish and then Russian dominion. They are now mostly peasant agriculturists. They are fair and well-built, with fine features and blue eyes.

Letts. See LETTIC.

Liberian Group. Sudanese Negro tribes, inhabiting the Grain Coast of West Africa. The Krus or Krooboys (*q.v.*), Queahs and Bassas are their chief tribes.

Liberians. Natives of the negro republic of Liberia on the Guinea Coast, partly descended from freed slaves of all races, but mainly belonging to the Liberian group.

Libyans. An ancient fair-haired and light-skinned race of Northern Africa, akin to the modern Berbers, belonging to the western stock of the Hamitic family. They are depicted on Egyptian monuments of fifteenth century B.C.

Ligures, or **Ligurians.** An ancient race of the western stock of the Hamitic family, probably the aborigines of North-West Italy round Genoa, to whom the Siculi, Sards and Corsicans were apparently akin.

Limbas. See TEMNE GROUP.

Lithuanians. See LETTIC.

Livonians. A branch of Baltic Finns, belonging to the Finno-Ugrian stock of the Northern Mongolic family; a dwindled remnant now inhabits the Baltic provinces of Russia.

Logons. See LAKE CHAD GROUP.

Lolos. A fair-complexioned aboriginal race on the frontiers of China and Tibet, belonging to the Chinese stock of the Southern Mongolic family.

Lombards. A race of Teutonic stock, formerly settled in the district of the Lower Elbe, who invaded Italy in 568, and there founded a powerful Lombard kingdom under Alboin and his successors. The Lombards were at first fierce warriors and little more; but they soon fell under the influence of Italian civilisation, and were merged into the Italian race when Charlemagne destroyed their independence in 774. Their name and some traces of their racial character still remain in Lombardy, between the Alps and the Po.

Luchuans. Natives of the Luchu or Liu-Kiu Archipelago, between Japan and Formosa, resembling the Japanese, but with differences which are attributed to a cross of the aboriginal Ainu blood. They belong to the Koreo-Japanese stock of the Northern Mongolic family.

Lushais. A warlike race of Tibetan stock inhabiting the Lushai Hills on the confines of Assam, Bengal and Burma.

Mabas. See WADAI GROUP.

Macedonians. A warlike people of ancient Greece, who attained their greatest power under Alexander the Great. They were not true Hellenes, but a race of wild mountain tribes probably of Hamitic origin. Modern Macedonia is peopled by an extremely mixed race of Greeks, Bulgarians, Turks, etc., among whom some descendants of the ancient Macedonians may no doubt be found.

Macusis. See CARIBS.

Madis. See NILITIC GROUP.

Madurese. A Malay race inhabiting Java, and allied to the Javanese (*q.v.*).

Magars. A Tibetan tribe of Western Nepal

Magwangwaras. A fierce predatory race of Bantu Negroes, occupying the head-waters of the Rovuma River in East Central Africa.

Magyars. A warlike and now highly civilised race belonging to the Finno-Ugrian stock of the Northern Mongolic family. They first appeared in Europe about a thousand years ago, being probably Scythian (*q.v.*) immigrants from the Caspian district. They conquered the Roman provinces of Pannonia and Dacia, and there founded the Kingdom of Hungary in the year 1000. They are still the dominant race in Hungary, which now forms part of the Austro-Hungarian Empire, and preserve their Finno-Ugrian speech. They are a chivalrous and highly intelligent race, whose Mongolic descent is no longer perceptible in their white skins and regular, often handsome features. Probably this is due to frequent crossing of blood with German, Slav and Roumanian neighbours.

Mahrattas. See MARATHIS.

Makololos. A warlike branch of the Basuto race of Bantu Negroes who, in 1835, moved north and conquered the Barotses, only to be reduced by them to vassalage about 1864.

Makuas. A savage cannibal race of Bantu Negroes, living north of the Zambesi in Portuguese East Africa.

Malagasy. A Malayo-African people of mixed blood, inhabiting Madagascar. The Hovas (*q.v.*) are the dominant tribe.

Malays. The dominant native race of Malaysia, the chief stock of the Oceanic Mongolic family. They are of a distinctly Mongolic physical type, of low stature and yellowish colour, with high cheek-bones, black lank hair and broad skulls. They may be divided into three

races: the Orang-Benua, or men of the soil, the indigenous Malay tribes at a low stage of culture; the Orang-Laut, or men of the sea, who live by fishing and piracy; and the Orang-Malayu, or civilised Malays proper. They inhabit the southern provinces of Sumatra, the native states of the Malay Peninsula (Kelantan, etc.), the British Straits Settlements (Johor, Perak, Selangor, etc.), parts of Borneo, Ternate, Tidor and the Banda Islands, and many islands of the Malay Archipelago. They have wandered as far as Madagascar, where the Malagasy (*q.v.*) are Malays crossed with Negro blood. They were formerly warlike and much given to piracy, but are now the chief trading race of South-eastern Asia. Their origin is dubious, but Sumatra is generally regarded as their original home. Of kindred blood are many so-called Proto-Malay races, such as the Achinese, Javanese, Sundanese, Dyaks, etc. (*q.v.*).

Malayalim. See DRAVIDIANS.

Manchus. The dominant native race of Manchuria, who conquered China in the seventeenth century and founded the existing Chinese dynasty. They are of the Mongol stock of the Northern Mongolic family. They first appear in history in the thirteenth century, when a number of nomad Manchu tribes were formed into a single people. They probably originated in Siberia, where the Tunguses (*q.v.*) represent their primitive stock.

Mandans. See SIOUAN.

Mandaras. See LAKE CHAD GROUP.

Mandingans. The chief race of Sudanese Negroes in the Western Sudan, with numerous branches between the Upper Niger and the coast, including Mandé or Mandingoes, Bambaras, Jallonkés, Kassonkés, Masinas, Sarakolés, Solimas, Susus, etc. Timbuctoo was formerly the capital of the Mandingan empire, before it fell under Berber domination. A large proportion of American Negroes are descended from slaves of Mandingan origin.

Mangbattu. Sudanese negroes of Welle group, noted for their pronounced cannibalism.

Mangkassara. Malay natives of Macassar, in Celebes, under Dutch rule.

Manipuris. Natives of Manipur, between Burma and Assam, mostly wild hillmen of mixed Burmese and Hindu blood, but classed with the Indo-Chinese stock of the Southern Mongolic family.

Man-Tses. Inhabitants of the mountain districts of Sze-chuen in China, akin to Lolos (*q.v.*). *m*

Manx or **Manxmen.** Inhabitants of the Isle of Man, belonging to the Celtic stock of the Aryan family, and the Goidelic or Q Celt branch of it. There is a strong Scandinavian element in their blood, from the numerous invasions of the old Norse pirates Their customs are also strongly marked by the Scandinavian element.

Manyuemas. Warlike Bantu Negroes of the Upper Congo, long allied with the Arab slave-traders.

Maoris. The aborigines of New Zealand, belonging to the tall brown race of Polynesians (*q.v.*), a branch of the Indonesian family. A brave, generous and warlike people, who are said to have reached New Zealand from the Pacific islands about a thousand years ago, they are one of the few native races which promise to assimilate western civilisation with success.

Marathis, or **Mahrattas.** A numerous Indian race of mixed origin, probably of aboriginal (Dravidian) blood in the main, with a Hindu element. They inhabit West and Central India, where they became the dominant power under Sivaji in the seventeenth century. The English had long and bloody contests with these wild and warlike mountaineers, who founded several great native states, some of which (Gwalior and Indore) survive to this day.

Maronites. A sturdy, warlike Christian race of mountaineers in the Lebanon, belonging to the Syrian branch of the Aramæan stock of the Semitic family. Implacable foes of the Druses, with whom they are constantly at war.

Marquesans. See POLYNESIANS.

Masais. A branch of the Eastern Hamites, settled in British East Africa on the Tana River. A finely-built race, whom only their chocolate colour and frizzy hair prevent from passing for Europeans. Extremely warlike and intelligent, they are confirmed raiders and cattle lifters.

Mashonas. Natives of Mashonaland, in South-eastern Rhodesia, formerly the half-fabulous empire of the Monomotapa, and the home of a forgotten civilisation, to which the ruins of Zimbabye and other similar relics bear witness. The Mashonas are Bantu Negroes, a peaceful, industrious people, who were subjugated about 1838 by the Matabeles under Umsilikatzi, and are now under British rule.

Massachusett Indians. See ALGONQUIAN.

Massalits. See WADAI GROUP.

Matabeles. A branch of the Zulu race of Bantu Negroes, which was expelled from Zululand in 1838, and conquered the Mashonas, in modern Rhodesia, under Umsilikatzi. Like the Zulus, they were proud and fearless warriors, who were only subjugated with difficulty by the English in 1893, and revolted unsuccessfully in 1896.

Matacoans. A South American Indian race on the Vermejo River in Argentine.

Mauri. See MOORS.

Maviti. Bantu Negroes of the Upper Shiré in British South Central Africa, of Zulu stock, who came as conquerors from the south.

Maya-Quiché. A group of Central American Indian races, mostly in Yucatan and Guatemala. It includes the Mayas of Yucatan, Zendals and Zotzils of Chiapas, Quichés, Chols, Pokomans, and Zutugils of Guatemala, Huastecs and Totonacs of Vera Cruz. Like the Aztecs, the Mayas possessed an ancient civilisation and system of picture writing.

Maypuris. See ARAWAKS.

Mbengas. Indigenous Bantu Negroes of French Equatorial Africa, about Corisco Bay.

Melanesians. The indigenous natives of the Western Pacific Islands, forming a distinct stock of the Oceanic Negro family of Ethiopic Man. They are long-skulled, or dolichocephalic, with the lowest cephalic index of all known races, prognathous, broad-nosed, of a sooty-black colour, with black frizzy hair, and of low stature. They are at a low stage of culture, being very savage, bloodthirsty, and treacherous, mostly cannibals and head-hunters, with little social organisation. They include the Fijians and the natives of the New Hebrides, the Solomon, Admiralty, Bismarck, and Loyalty Islands, New Britain, New Ireland, New Caledonia, and other islands of the Eastern Pacific. They are closely

allied to the Papuans (*q.v.*), under which name some ethnologists prefer to class the whole body of Melanesians.

Melanochroi. A suggested division of Caucasic Man, in which a pale skin is typically accompanied by dark hair and eyes; it would thus include the Hamitic and Semitic families, with the Hellenic, Italic, and Celtic stocks of the Aryan family.

Mendis. See TEMNE GROUP.

Mentawey Islanders. A remnant of the aboriginal Polynesian race dispossessed by the Malays, off the coast of Sumatra.

Mestizos. Cross-breeds between Europeans and Indians, in Spanish and Portuguese America.

Mexicans. See AZTECS and NAHUANS. Also the modern inhabitants of Mexico, who are of Spanish descent, with a strong infusion of Indian blood.

Micmacs. An Indian race of Nova Scotia, in whom some ethnologists think that a trace of Norse blood, dating from the pre-Columbian discovery of America, is perceptible.

Minæans. See HIMYARITES.

Mingrelians. See GEORGIANS.

Minh-huongs. Franco-Annamese half-breeds in Cochin China, an increasing race who make very valuable colonists.

Minnetarees. See SIOUAN.

Mishmis. A wild Tibetan hill tribe occupying the jungle-covered hills through which the Brahmaputra flows, on the northern border of Assam. Warlike and turbulent.

Missouri Indians. See SIOUAN.

Mixtecs. An ancient Mexican race, contemporary with the Toltecs (*q.v.*), probably represented by the modern Miztecs of Oajaca.

Moabites. An ancient pastoral race of Semitic origin, ethnologically cognate with the Israelites, who dwelt on the east of the Dead Sea, and are now extinct.

Mœsogoths. See GOTHS.

Mohawks. See IROQUOIAN.

Mohicans. One of the most famous and warlike of redskin races, immortalised by Fenimore Cooper. See ALGONQUIAN.

Mojos, or **Moxos.** A yellowish Indian race of Bolivia, akin to the Chiquitos.

Mokis. See SHOSHONEAN.

Mongolic. One of the four great divisions of mankind. Typically characterised by yellowish skin, broad, flat features with prominent cheek-bones, broad skulls, mesognathous jaws, and oblique, almond-shaped eyes, with black, lank and coarse hair. The Manchus are a typical Mongolic race. The Mongolic races are mostly found in Asia, which is chiefly peopled by their stocks. The name "Mongolic" has replaced the older "Turanian."

Mongols. A stock of the Northern Mongolic, otherwise known as Mongolo-Tartar or Ural-Altaic, family, from whom the general term of Mongolic is derived. The name seems originally to have meant "brave," and the Mongols have provided some of the most fierce and warlike races of history. They originated as scattered tribes in modern Mongolia. Under Genghiz Khan they were formed into a confederacy which conquered the whole of Central Asia in the thirteenth century, thanks to an unlimited supply of hardy and very mobile horsemen. The existing Mongol tribes, nomad pastors of Mongolia in Central Asia, are divided into Sharras or Eastern Kalmuks, or Western Buriats, or Siberian Mongols, and Tunguses, including Manchus (*q.v.*).

Montenegrins. A Servian race of civilised mountaineers, inhabiting the rugged district of Montenegro; the only Balkan race which preserved independence and Christianity against the Turkish conquerors. Their history is one of constant warfare with the Turks, and they have thus preserved the primitive virtues of the warrior in great perfection.

Moors. The ancient Moors, or Mauri, were the inhabitants of the Roman province of Mauretania, roughly including the modern Algeria and Morocco. They were probably of mixed descent, partly Semitic from Arabia, partly Western Hamitic from indigenous sources. In modern times the name is applied (1) to the invaders and conquerors of Spain in the Middle Ages, who were mostly of Arab and Berber stock; (2) to the present inhabitants of Morocco and the Barbary States, of the same stocks, with a large infusion of Sudanese Negro blood. The Moors have always been a turbulent and warlike people, who furnished the most notorious pirates of modern history, thanks to their commanding position on the great highway of sea-borne commerce.

Moquis. See PUEBLO INDIANS.

Mordvins. A branch of the Finns (*q.v.*), forming small communities on the banks of the Volga.

Mosgus. See LAKE CHAD GROUP.

Mossis. See NIGERIAN GROUP.

Mpongwes. A Bantu Negro race on the Gaboon Estuary in French Equatorial Africa, given to drink and boasting, of little economic value, though once powerful.

Mulattos. Half-breeds between whites and negroes.

Mundas. A Kolarian race of Lower Bengal, with possible traces of Negroid blood.

Mundrucus. See TUPI-GUARANI.

Mundus. See NILITIC GROUP.

Mushi-Kongo. Bantu Negroes of Portuguese West Africa, still in an absolutely savage state.

Muskhogean, or **Appalachian.** A group of North American Indian tribes, formerly occupying the south-eastern corner of the present United States, south of Tennessee, and east of Arkansas. Formerly a powerful confederacy of warlike hunters, they are now extinct or confined to Indian reservations. The chief tribes are Alibamus, Apalachis, Chickasaws, Choktaws, Creeks or Muskhogees, and Seminoles.

Mycenæans. The inhabitants of ancient Mycenæ, one of the chief centres of prehistoric culture in Greece before the Homeric age. Recent excavations, at Mycenæ itself, at Cnossos in Crete, and other contemporary sites of government, have thrown light on the remarkable civilisation which then existed. The Mycenæans, Cretans, and their kindred peoples were probably a mixed Caucasic race, with affinities to the later Aryan Achæans and to the aboriginal Hamitic Pelasgians; but nothing is yet certainly known of their ethnological place.

Nagars. See DARDS.

Nagas. Aborigines of the Naga Hills, in South Assam, semi-savage and formerly accustomed to raid the British provinces; now under British rule. They are of Tibetan stock.

Nahuans, or **Mexican Indians.** The aboriginal inhabitants of modern Mexico, whose history dates back to the sixth century. The oldest of the Nahuan races was that of the Toltecs, who

established a civilisation marked by architectural and artistic monuments still existing, north of the valley of Anahuac. They were followed by the ruder Chichimecs and the Aztecs (*q.v.*). Other branches of the same race are the Pipils and the Niquirans of Nicaragua.

Naimans. (1) See SHARRAS. (2) A tribe of the Middle Horde of the Kazaks. See KIRGHIZ.

Nairs. A Hindu tribe of Malabar, distinguished by their peculiar marriage customs. They practise polyandry, and a Nair's property descends not to his own but to his sister's children.

Namas or **Namaquas.** A Hottentot tribe of Namaqualand, the true aborigines and the principal representatives of the Hottentots (*q.v.*). Scattered in small pastoral groups.

Natchez Indians. An extinct North American Indian race, formerly inhabiting the region of the Lower Mississippi.

Navajos. See ATHABASCAN.

Neanderthal Man. A race of primitive man, represented only by a skull and a few bones found in a limestone cave of the Neanderthal in Rhenish Prussia in 1856. The most ape-like race yet known, and probably the oldest.

Negritoes. A branch of Ethiopic Man, found in Central Africa, and in the Andamans, the Malay Peninsula and the Philippines, akin to negroes but of smaller stature and more ape-like. Possibly the primitive stock from which the Negroes (*q.v.*) were developed.

Negroes. The most numerous branch of Ethiopic Man, divided into African (Sudanese, Bantu, and Hottentot-Bushman) and Oceanic (Papuan, Melanesian, and Australian) sections. American Negroes are descended from African slaves, mostly of Sudanese origin. See HAYTIANS.

Nempés. See NIGERIAN GROUP.

Nestorians. A Syrian race, belonging to the Aramæan stock of the Semitic family, distinguished by a special form of Christian belief, who were driven out of the Roman Empire in the fifth century, and whose descendants now form a special community in the mountain ranges of Kurdistan. They are poor and illiterate. A branch of Nestorians is found in Travancore, where they go by the name of Syrian Christians.

New Guinea Natives. See PAPUANS.

New Zealanders. (1) Aborigines [see MAORIS]. (2) White inhabitants of New Zealand, of Anglo-Saxon descent.

Nez Percés. A tribe of North American Indians, in British Columbia and Idaho, part of whom are well advanced in civilisation.

Niam-Niam. See AZANDEH.

Nicaraguans. White natives of Nicaragua, in Central America, of Spanish descent, with Indian and negro elements.

Nicobarese. Natives of the Nicobar Islands, of Malay blood mixed with that of the Mongolic aborigines. Formerly given to piracy.

Nigerian Group. A group of Sudanese Negro tribes, all of allied stocks, inhabiting the Niger Delta, the Oil River, Lower Benue, and Niger region, including the Niger Bend. Amongst them are the people of Benin—noted for their vast human sacrifices—the Abo, Nempé, Nupé, Akasa, Qua, Efik, Okrika, Akpa, Mossi, Sienereh, and many other tribes.

Nilitic Group. Another group of Sudanese Negro tribes, inhabiting the districts of the White Nile, Sobat, and the northern slopes of the Nile-Congo divide. They include the Abaka, Abukaya, Bongo, Shuli, Falanj, Madi, Bari, Nuer, Shilluk, Dinka, Mundu, Rol, Mittu, Krej, and Fertit tribes. They are mainly hard-working agriculturists, from whom the British draw material for excellent soldiery.

Niquirans. See NAHUANS.

Nogais. A race of Caucasian Tartars (*q.v.*) inhabiting the steppes of the Kuma River; nomadic cattle-breeders.

Normans. Natives of Normandy, descended from the Norsemen (*q.v.*) who settled on the French coast under Rolf the Ganger in the beginning of the tenth century. The history of the Normans, who conquered England and Sicily, is well known. The modern Normans still preserve many signs of their Scandinavian ancestry, which distinguish them from their French or Breton neighbours.

Norsemen or **Northmen.** A name given in the Middle Ages to the piratical emigrants from Denmark, Iceland, Sweden, and Norway, who descended on the coasts of England, France, Germany, and Southern Europe. They called themselves Vikings. These sea-rovers came, in the first instance, for portable plunder, but in many cases they were tempted by the look of the more fertile lands of the south to make settlements, among which those of the Danes in England and Ireland and of the Norwegians in Normandy, England, and Sicily were the most lasting and important.

Norwegians. A branch of the Scandinavian stock of the Aryan family. They are probably descended from Teutonic immigrants—perhaps of Gothic race—who entered the Scandinavian peninsula in prehistoric times, and drove out the aboriginal Lapps or Finns. Another theory makes Scandinavia the original home of the Aryans, of whom, on this view, the Norwegians would represent the primitive stock. Their history begins in the ninth century, when a Norwegian kingdom was established by Harold Fairhair. The old Norwegians were extremely warlike and piratical [see NORSEMEN]. Their modern descendants are a peaceful and industrious race, the most simple and democratic people of Europe, who recently threw off the Swedish rule and re-established the ancient Norwegian kingdom.

Nsakkaras. See WELLE GROUP.

Nuba Group. A group of Sudanese Negro tribes, occupying Nubia, Dar-Fur, and Kordofan, in the Egyptian Sudan. They include the Furs, Nubas, Nile Nubians, Tumalis, Kargos, Kulfans, Kolajis, and Kunjaras. They are an active and warlike race, in which the primitive Negro blood has frequently been modified by Semitic (Arab) and Hamitic influences. They supply many of our Sudanese regiments.

Nubians. Ancient inhabitants of Nubia, probably identical with Ethiopians (*q.v.*), but modified by the infusion of Negro blood. They established a Nubian kingdom in the Upper Nile basin about the sixth century.

Nuers. See NILITIC GROUP.

Numidians. An ancient Hamitic race, inhabiting the district now known as Algeria. They were fine horsemen, warlike, but treacherous, and were conquered by Rome B.C. 46. See BERBERS.

Nupés. See NIGERIAN GROUP.

Nutkas. A collective name given to the Indian tribes of Vancouver Island and the adjoining districts of British Columbia.

Obongos. A Bushman-like race of pygmy Negritoes discovered by Du Chaillu on the western coast of equatorial Africa, physically and mentally degenerate.

Ojibbeways. See ALGONQUIAN.

Okrikas. See NIGERIAN GROUP.

Olkhonese. A tribe of Buriats (*q.v.*) inhabiting the district of Lake Baikal.

Omaguas. See TUPI-GUARANI.

Omahas. See SIOUAN.

Onondagas. See IROQUOIAN.

Opata-Pima. A group of Central American Indian races, allied to the Nahuan group (*q.v.*), but of lower mental and physical type. It includes the Cora, Yuma, Papago, Tarahumara and Tepeguana tribes.

Orang-Benua, Orang-Lauts. See MALAYS.

Ordos. See SHARRAS.

Orochs. A nomadic tribe of the Siberian Tunguses (*q.v.*).

Osages. See SIOUAN.

Oscans. A primitive Italic race inhabiting Campania, who were conquered by and amalgamated with the Samnites (*q.v.*) in the fifth century, B.C. Their language was a ruder form of Latin.

Osmanlis. See TURKS.

Ossets. An isolated Aryan race inhabiting the Central Caucasus, and differing in language and customs from their Caucasian neighbours. They are probably allied to the Iranian stock, though some suppose them to be descended from Gothic settlers.

Ostrogoths. See GOTHS.

Ostyaks. A Ugrian race of Mongolic physical type, allied to the Samoyedes (*q.v.*), inhabiting the Obi basin in Western Siberia. They are mainly nomads, hunters and reindeer breeders. They are kind, gentle and honest, and show considerable artistic power.

Otoes. See SIOUAN.

Otomis. An Indian race of Mexico, assumed on linguistic grounds to represent the oldest of American Indian stocks.

Ottomans. See TURKS.

Ovaherero. See HERERO.

Ovampos. The chief Bantu Negro race of German South-west Africa, tall and well-proportioned, with regular features—a fine Negro type. They are industrious agriculturists, given to raiding and inter-tribal warfare.

Oworos, Oyos. See YORUBAS.

Pampas Indians. See PUELCHES.

Pangasinans. A semi-civilised Malayan race in the Philippine Islands.

Papagos. See OPATA-PIMA.

Papuans. The savage aborigines of New Guinea and the neighbouring islands of the Torres Strait and East Malaysia. They belong to the Oceanic division of Ethiopic Man, and are allied to the African Negro, though they stand at a somewhat higher intellectual level. They are of Negroid physical type, characterised specially by their mops of frizzy hair; colour, a sooty brown to black, with projecting jaws, thick lips and retreating foreheads; nose sometimes flat, but oftener hooked and of Jewish appearance. The race has probably been modified by Malayan and Polynesian intermixture. Probably the Melanesians and the Australian aborigines are closely related to the Papuans. They are a fierce and treacherous race, hostile to strangers, and given to cannibalism and head-hunting. They show much agricultural skill, and in some cases are susceptible of European civilisation.

Paraguay Indians. See TUPI-GUARANI.

Parsees. Followers of Zoroaster, of Persian descent, who have settled in India, chiefly near Bombay, where they have become one of the most thriving sections of the community, owing to their marked ability for commerce. A small remnant of Parsees, known as Guebres, is still to be found in Persia itself.

Parthians. A warlike people of the ancient world, inhabiting a district of Northern Persia. They seem to have been of Scythian (*q.v.*) descent, and were noted for their habit of fighting on horseback and discharging their most fatal arrows whilst in pretended flight. Under Mithridates (171–138 B.C.), the Parthians became supreme in Persia, and afterwards warred for long successfully with the Romans.

Patagonians or **Tehuelches.** Natives of the most southerly region of the American continent, noted for their great stature, in many cases approaching the gigantic. They are one of the physically strongest races of the earth, of a yellowish brown colour, with well-formed and regular features. They are nomadic tribes of Araucanian (*q.v.*) descent, who live by fishing and hunting; and peacefully disposed to strangers.

Pathans. See AFGHANS.

Payaguas. A South American Indian race, in the Argentine, whose wealth of silver ornaments gave a name to the Rio de la Plata.

Pawnees. A brave warlike tribe of North American Indians, akin to the Shoshonean group (*q.v.*) and formerly settled in Nebraska.

Pechenegs. An ancient Mongolic race of Turki stock, a branch of the Kipchaks (*q.v.*).

Pelasgians. The pre-Aryan inhabitants of Greece, apparently the aborigines of that country, who were dispossessed by the Aryan Hellenes. Little or nothing is known of their racial characteristics and affinities; but the excavations recently made at Mycenæ, Knossos, etc., show that they had reached a high stage of civilisation in prehistoric times on the Ægean coast. Probably a branch of the Western Hamitic family, resembling Berbers (*q.v.*) in physical type. See MYCENÆANS and ETRUSCANS.

Permians. A branch of the Finnish race, inhabiting the district of Perm in Russia, and closely resembling the Karelians (*q.v.*).

Persians. The ancient Persians were the main branch of the Iranian stock of the Aryan family, a civilised and warlike nation, who taught their sons "to ride, to shoot with the bow, and to speak the truth." They reared a great empire under Cyrus (B.C. 537) and his successors, which was destroyed by Alexander the Great and divided in 324 B.C. The modern Persians, known as Tajiks, and as Tats on the west of the Caspian, are the descendants of the ancient Persians with a considerable admixture of alien blood, due to a long period of Arab and Turkish domination. They present a fine Aryan type, however, and are cultivated and commercial, though not warlike.

Peruvian Indians. See INCAS.

Peruvians. White natives of Peru, partly of pure Spanish descent, partly crossed with Indian blood.

Philippine Islanders. The natives of the Philippines belong to three distinct races—Negritoes, Indonesians and Malays. The Negritoes are known as Aetas (*q.v.*). The Indonesians are confined to the island of Mindanao; they are light-skinned, tall and well-developed physically. Their chief tribe is that of the Igorrotes. The Malays are brown-skinned, with black hair and flat noses, being crossed with Negrito blood. Their chief tribes are the Visayans, Tagalogs, Bicols, Ilocanos, Cayagans, Pangasinans and Pampangas. These are all Christianised and fairly civilised. The interior is occupied by wild and savage tribes of similar race, and by the dwarfish and nomadic Negritoes. Many of these tribes practise head-hunting, cannibalism, and human sacrifices. The more civilised tribes, with the Spanish-Indian half-breeds, known as Filipinos, are turbulent and lawless, the source of much trouble to the new American as to the old Spanish rulers.

Philistines. An ancient race inhabiting the Mediterranean seaboard to the south-west of Judæa, who warred much with the Israelites, and were finally subdued by them. They were probably a Canaanitish people, belonging to the Semitic family; but some regard them as an immigrant Hamitic race, perhaps related to the Cretans or Pelasgians. The assumed inferiority of their culture to that of the Israelites has given rise to the modern use of "Philistine" as a term of reproach.

Phœnicians. The greatest seafaring and trading nation of ancient times, and the earliest of Mediterranean sea-powers. A branch of the Canaanite stock of the Semitic family, they inhabited the Mediterranean coast between Latakia and Acre, their chief cities being Tyre and Sidon. They possessed a remarkable polytheistic religion, disfigured by human sacrifices. They were an inventive race, to whom we owe glass and Tyrian purple. They seem to have entered Phœnicia from the direction of the Red Sea in prehistoric times, and were at first subject to Egypt, but about 1300 B.C. reared a great maritime empire, which endured for nearly a thousand years and was destroyed by Alexander the Great. They were the great traders of the ancient world, and carried on a commerce which ranged from Cornwall to Ceylon and Senegal. The Carthaginians (*q.v.*) were a colony of Phœnicians.

Phrygians. An ancient pastoral people of Asia Minor, closely related to the Armenians (*q.v.*), who were absorbed by the Persians in the sixth century B.C.

Picts. The aborigines of ancient Scotland, a short, round-headed, dark race, probably a branch of the Iberian stock of the Western Hamitic family, and thus closely related to the Basques (*q.v.*). The Picts were a wild and warlike race, who harassed the Roman province of Britain, and were exterminated by the invading Scots from Ireland in the early part of the Christian era. The whole Pictish problem is still unsolved by ethnologists, some of whom hold that the Picts were a Celtic race, allied to the modern Welsh or to the Scottish Highlanders of to-day.

Picuris. See PUEBLO INDIANS.

Pipils. See NAHUANS.

Pitcairn Islanders. Half-breed descendants of Englishmen (the mutineers of the "Bounty") and Tahitian women. A peaceful and idyllic race.

Pocomans, Poconches. See MAYA-QUICHÉ.

Poles. A stock of the Western Slavonic family, originally dwelling between the Vistula and the Oder. In the tenth century Poland became an independent European Power, and remained an elective kingdom down to its partition in the eighteenth century between Russia, Austria and Prussia. The Polish peasantry have always been industrious and successful agriculturists, whilst the nobility were turbulent and warlike. The Poles who live under Austrian and German rule are fairly contented, but those of Russian Poland have carried on a long and often bloody series of struggles for liberty. Of late years, Russian Poland has become a manufacturing country, under German influence. The Poles have a considerable literature, and are eminently musical.

Polynesians. The chief stock of the Indonesian (*q.v*) family, the tall, brown-skinned race of Caucasic type who inhabit the chief islands of the Eastern Pacific, and are generally known as South Sea Islanders. Their chief races are the Maoris (*q.v.*) of New Zealand, the Marquesans, Tahitians, Tongans and Samoans, besides the natives of Easter, Gambier, Hervey, and other smaller islands. They are of tall stature—only surpassed by the Patagonians—muscular frame, regular and often handsome features, with brown skins, square jaws, and broad skulls. They probably originated in Malaysia, where they are still represented by the Battaks of North Sumatra, some Dyak races, and certain tribes of the Philippines and Gilolo. They are a gay, pleasure-loving people, formerly addicted to cannibalism, but otherwise of pleasing manners, and are now rapidly acquiring civilisation, though their numbers are everywhere decreasing under the influence of European manners and diseases.

Poncas. See SIOUAN.

Portuguese. Natives of Portugal, a mixed race, probably of Iberian or Basque origin, with later Celtic elements. After falling successively under Roman, Visigothic, and Saracen dominion, they formed an independent kingdom in the twelfth century. The early Portuguese were enterprising seamen, who contributed largely to the exploration of the world, and founded many colonies in Africa, which they still possess. Brazil is their chief American settlement, now independent.

Provencals. Natives of Provence, in the South of France. Their primitive Ligurian (*q.v.*) stock was modified by many successive influences, such as the Greek colonists, who founded Marseilles, the Roman settlers in the Provincia (Provence), and, later, Gothic and Saracen invaders. The Provençals are a gay, impulsive and pleasure-loving people, markedly distinct from the more staid and industrious inhabitants of Northern France.

Pruczi, or Old Prussians. See LETTIC.

Prussians. The earliest inhabitants of Prussia were Slavonic tribes [see LETTIC]. The modern Prussians, the dominant race of the German Empire, belong to the High German branch of the Teutonic stock.

Pueblo Indians. A semi-civilised race of North American Indians, dwelling in New Mexico and Arizona. They inhabit "pueblos," or huge houses, often large enough to contain a whole tribe under one roof. They possess



WOMEN OF THE NUPÉ TRIBE IN NIGERIA

The Nupé tribe is a family belonging to the Nigerian group of Sudanese Negroes. They inhabit chiefly the town of Lokoja, in West Africa. [See under Nigerian group].



THE AINUS, PROBABLY THE ORIGINAL INHABITANTS OF JAPAN

The Ainus are a declining race, now confined to a small area in the Far East. They have, as is seen in this picture, handsome features and an abundance of hair. [See page 312].

interesting religious and social customs, much studied by anthropologists. Their chief tribes are the Zunis, Teguas, Taos, Picuris, and Tusayas. The Moquis of Arizona are closely related to them.

Puelches, or **Pampas Indians.** A strongly-built, dark-skinned race of South American Indians, who inhabit the great plains or pampas from the Saladillo to the Rio Negro in Argentina. They are expert horsemen, from whom the Gauchos (*q.v.*) are derived.

Punjabis. Natives of the Punjab, in North-West India, mostly Jats and Sikhs (*q.v.*) belonging to the Hindu stock of the Aryan family. An agricultural and warlike people.

Puntis. See CHINESE.

Pygmies. Dwarfish Negrito races of Central Africa, long considered to be mythical, but now well known to ethnologists. They include the Akkas and Wochuas of the Welle Basin, the Obongos of the Gaboon, the Batwas of South Congo, etc. In very early times they were known by repute to the Egyptians—on whose monuments they appear in the thirty-fourth century B.C.—and the Greeks. They live by the chase in the Central African forests, and use poisoned arrows. Other small races, such as the Bushmen, Lapps, Kalangs, Samangs, etc., have contributed to the fame of the Pygmies.

Quas. A Sudanese Negro tribe on the Ivory Coast, belonging to the Nigerian group (*q.v.*).

Quapaws. See SIOUAN.

Queahs. See LIBERIAN GROUP.

Quichés. A race of Central American Indians in Guatemala, rivalling the Aztecs in the possession of an ancient civilisation and a curious mythology. See MAYA-QUICHE.

Quichuas. See INCAS.

Rajputs. The predominant race of Rajputana, in Central India, belonging to the Hindu stock of the Aryan family. They are a proud and warlike aristocracy of soldiers and landowners, who rule many native states, of which Jaipur, Jodhpur and Udaipur are the most important.

Ramas. See LENCAN.

Redskins. A term given in common parlance to North American Indians, from their colour.

Rejangs. A Malayan race of Sumatra, akin to the Achinese (*q.v.*).

Rols. See NILITIC GROUP.

Romans. The most powerful and warlike, and in every sense the greatest race of ancient Europe, who acquired the dominion of the Western world, and laid the foundations of modern civilisation. The city of Rome was founded by Alban shepherds, of Latin (*q.v.*) race, in the eighth century B.C. Oscan, Sabine, Samnite, and Umbrian (*q.v.*) elements were added to the original stock, and thus the great Roman character was moulded. Rome later extended her power over the whole of Italy, and then over the whole of the known world.

Romance Races. See LATIN RACES.

Romansch. Natives of the Grisons in Switzerland, speaking a Romance dialect, and probably of Italic race.

Roumanians, or **Vlachs.** Natives of the modern Roumanian kingdom, the leading Balkan State, composed of the older principalities of Wallachia and Moldavia, which were long subject to the Turks. The Vlachs (Wallachs, a name akin to our Welsh) are probably descended from the Latin-speaking inhabitants of the ancient Roman province of Dacia, a tribe of Thracian descent, which was subjugated by Trajan in the second century. They have preserved their language, but their blood has been mingled with that of numerous conquerors—Goths, Huns, Slovenians, Albanians, Turks, etc. The Roumanian peasantry are a hardy and thrifty race, retaining their old warlike traditions.

Rucuyennes. See CARIBS.

Russians. The chief of the Slavonic races inhabiting European Russia, and divided into Great, White, and Little Russians. The physical distinction between these races is attributed to the mixture of the primitive Russian stock respectively with Finnish, Lithuanian, and Turkish blood. The original Russians belonged to the Slavonic stock of the Aryan family, and seem to have been settled in prehistoric times between the Danube, the Elbe, and the south coast of the Baltic. Thus they must have entered Russia from the west in the early centuries of our era. There they conquered and drove out or assimilated the aborigines of Northern Mongolic (Finno-Turkish) stock, and established a number of small states, agricultural in character, which long suffered from Tartar invasion, notably that of the Golden Horde [see KIPCHAKS], and were gradually moulded into a single kingdom, with Moscow for its capital. Modern Russia, with its vast Asiatic dependencies, is one of the greatest Empires in the world, but it is in a state of transition, and its civilisation is consequently backward. The Russian peasants are very patient, industrious, and thrifty. When well led, they are admirable soldiers. Their chief occupation is agriculture.

Ruthenians. A branch of the Little Russian race, who inhabit the district of the Carpathians in Galicia and Hungary; poor, but hardy cultivators of the soil.

Sabæans. See HIMYARITES.

Sabines. An ancient Italic race, who inhabited the district between the Central Apennines—their ancestral home—and Rome. The Samnites were their descendants or near kinsmen, and the Umbrians were less closely related to them. When Rome was founded there was a strong Sabine element in its population, as indicated by the story of the Rape of the Sabine Women, and the statement that several of the early kings of Rome were of Sabine blood. The Sabines and Samnites warred against Rome for many years, but both were ultimately subdued and incorporated in the Roman State.

Sac Indians. See ALGONQUIAN.

Sakais, or **Samangs.** An aboriginal Negrito race of the Malay Peninsula; a wild and uncivilised people, with black skins and woolly hair, often approaching the ape-like in physical development and intelligence.

Sakalavas. One of the principal groups of the Malagasy tribes, inhabiting the west coast of Madagascar; of mixed Malay and negro blood, and akin to the Hovas (*q.v.*).

Salish. See FLATHEADS.

Samangs. See SAKAIS.

Sambos, or **Zambos.** Half-breeds sprung from Negro and Indian parents.

Samnites. See SABINES.

Samoans. A Polynesian (*q.v.*) race, of fine physical development, lazy and pleasure-loving, inhabiting the Samoan group of islands.

Samoyedes. A Finno-Ugrian race, inhabiting the Obi basin in Siberia, once widely spread over

the extreme north of Europe and Asia. They are short and dark haired, with Mongolic features, brave and honest, live by hunting and fishing, and are still in the Stone Age.

Samsams. A mixed Malayo-Siamese race, forming a large part of the population of the Malayan States of Kedah and Ligor.

Santals. A negro-like aboriginal tribe of Orissa in India, agiculturists, of the Kolarian family (*q.v.*).

Saracens. A term applied in the Middle Ages to the Moslem enemies of Christendom, especially to the nomadic Arabs and Bedouins of the Syrian deserts.

Saras. See LAKE CHAD GROUP.

Sarakolés. See MANDINGAN.

Sards, or **Sardinians.** The aboriginal inhabitants of Sardinia, probably of the Western Hamitic family, akin to the Iberians or Ligurians (*q.v.*). The modern Sardinians are descended from this race, with considerable admixtures of alien blood from the Carthaginian, Roman; Saracen, Spanish and Italian owners of the island in successive periods.

Sarmatians. An ancient nomadic and warlike people, probably akin to the Scythians (*q.v.*), who roamed over the wide plains of Eastern Europe. Fine horsemen. They were destroyed by the Goths in the fourth century, and disappeared from history.

Sassaks. Natives of Lombok in the Sunda Islands, of Malayan race.

Savoyards. Natives of Savoy, originally a short, round-skulled, dark race, akin to the Auvergnats (*q.v.*), now largely mingled with Teutonic blood.

Saxons. (1) The Old Saxons originally inhabited the estuary of the Elbe and the neighbouring islands. They were a warlike race, of Low German stock, whose name is said to be derived from the "Saxes," or heavy knives which they used in war. They were one of the most adventurous of Teutonic races, and made many piratical and colonising excursions, of which the most important was their settlement in Britain in the fifth century, where they united with the Angles (*q.v.*) to lay the foundation of the modern English people. (2) The Saxons who remained on the Continent gradually extended their dominion till it reached modern Saxony. Under Charlemagne the Saxon power was subordinated to that of the Franks. Saxony later became an independent duchy, which is still one of the chief States of the German Empire. The modern Saxons are less adventurous than their ancestors, very industrious, and successful in agriculture and industry, and make excellent soldiers.

Scandinavians. A main stock of the Aryan family, sometimes classed as a branch of the Teutonic stock, including the Icelanders, Norwegians, Danes and Swedes, as well as the old Norsemen and Normans (*q.v.*). Some ethnologists regard them as the original stock of the Aryan family. They are tall, blue-eyed, fair-haired, warlike, and good sailors and colonists.

Scots or **Scotch.** (1) The ancient Scots were a Celtic race, belonging to the Goidelic or Q Celts (*q.v.*), originally settled in Ireland—the ancient Scotia—whence they made settlements in the fifth century in modern Scotland, to which they gave their name. They were gradually driven back into the Highlands by Anglo-Saxon, Norman and Danish invaders, and are now represented by the Highlanders (*q.v.*) or Gaels. (2) The modern Scots, or Lowland Scots, are mainly of Anglo-Saxon race, modified by Norman, Danish, and Flemish elements. They are one of the finest and most hardy and industrious races in the world, equally successful in the arts of war and peace.

Scythians. An ancient nomadic and warlike race, found in the seventh century B.C. on the vast plains of South-eastern Europe, where they lived by cattle-breeding and raiding. They dwelt in tent-covered waggons, fought on horseback with bows and arrows, and made drinking-cups of their enemies' skulls. Their origin is in dispute. Some regard them as a Mongolic race, which was modified by association with Aryan races, and others as an Aryan stock; their kinsmen, the Sarmatians (*q.v.*), were almost certainly Aryans. They made several incursions into Asia, where they conquered a large tract of Northern India and established a kingdom which lasted till about the fourth century A.D. The Rajputs and Jats (*q.v.*) are sometimes held to be their descendants.

Selengese. See BURIATS.

Seljuks. A warlike Turkish people who were settled on the Jaxartes in the eleventh century and afterwards founded a considerable empire in Western Asia. See TURKS.

Seminoles. See MUSKHOGEAN.

Semites. An important family of Caucasic Man, who probably originated in North Africa, from a similar stock to that of the Hamites. They are characterised by fine regular features, large aquiline noses, black eyes and hair, white skins, long skulls and square jaws. They are very intellectual, though less practical than the Aryan type; poets, prophets, and dreamers, rather than men of action. They have given the world its two greatest religions—Christianity and Islam. Their chief divisions are Assyrians, Aramæans, Canaanites, Arabs and Himyarites (*q.v.*). In the modern world they are best known from the ubiquitous Jews (*q.v.*).

Seneca Indians. See IROQUOIAN.

Serbs. See SERVIANS.

Serers. Sudanese Negroes inhabiting Senegambia in the Cape Verde district. They are the tallest of Negro races, with herculean frames, and are akin to the Wolofs (*q.v.*)

Servians, or **Serbs.** A race of Southern Slavonic stock, now inhabiting Servia. They were at first identical with the Croats (*q.v.*), and seem to have originated in the Carpathian district, whence they migrated into the Balkan peninsula in the seventh century. The Serbs then separated from the Croats, and in the twelfth century founded a powerful Servian kingdom, which was conquered by the Turks in the fifteenth. The Servians recovered their independence in 1830, under Milosh Obrenovitch. The Servians are a well-built race, proud and martial in temperament, quick-tempered and prone to deeds of violence, as their recent revolution witnessed.

Shangallas. A mixed negroid race of the Abyssinian slopes. Sudanese Negroes with a Hamitic infusion.

Shans. Natives of the independent Shan States, lying to the north of Siam. They are identical with the Laos, and closely related to the Siamese (*q.v.*). They belong to the Indo-Chinese stock of the Southern Mongolic family, and are

probably descended from an aboriginal race of China, which appeared on the Upper Irawadi about 2,000 years ago. They are a peaceful, pleasure-loving people, mainly agricultural, but not unwarlike. They have a sallow skin and Mongoloid features.

Sharras, or **Eastern Mongols.** A branch of the Mongol stock of the Northern Mongolic family. They are a nomad, tent-dwelling, pastoral race, who roam over the great steppes of Central Asia. They include the Khalkas, north of the Gobi Desert, the Tanguts of Northern Tibet, the Chakars, Barins, Durbans, Uruts, Naimans, and Ordos south of the Gobi. They are descended from the older Mongols (*q.v.*), whom they resemble in physical type.

Shawnees. See ALGONQUIAN.

Shilluks. See NILITIC GROUP.

Shoshonean. A group of North American Indian tribes, all belonging to the Shoshone or Snake family, formerly occupying Idaho, Utah, and Wyoming, with neighbouring districts. They include the Shoshones or Snakes, Bannocks, Comanches, Utahs, and Mokis. With the exception of the warlike Comanches, they are a peaceful race, who have received the white invaders with friendship.

Shulis. See NILITIC GROUP.

Siamese. Natives of Siam, belonging to the Indo-Chinese stock of the Southern Mongolic family. They are closely related to the Shans (*q.v.*). They are of medium height, olive complexion, with slightly flattened noses, promi ent lips, and black hair. They are a peaceful and indolent race, who have recently shown promise of assimilating Western civilisation. Their blood is largely mixed with Chinese and Malay. Siam is still independent, forming a buffer state between British and French possessions.

Siberian. A stock of the Northern Mongolic family, including the Chukchi, Koryak, Kamchadale, Gilyak, and Yukaghir tribes (*q.v.*).

Sicani, Siculi. See SICILIANS.

Sicilians. The primitive inhabitants of Sicily were the Sicani, probably a Hamitic race allied to the Ligurians (*q.v.*). They were followed by the Siculi, an Aryan race of Italic stock, who crossed from Italy about 1000 B.C. They were civilised and modified by Phœnician, and especially Greek settlers, with later Norman and Saracen influences. Of all these elements the modern Sicilians are compounded. They are a handsome, industrious, and amiable race, but turbulent, lawless, given to blood-feuds and brigandage.

Sienerehs. See NIGERIAN GROUP.

Sikhs. A powerful and warlike race of Northern India, united by a common religious faith, dating from the eighteenth century, and mainly of Jat (*q.v.*) descent. Under Ranjit Singh, at the beginning of the eighteenth century, they reared a formidable military power in the Punjab, which was conquered by the British in 1846–1849. The Sikhs contribute many of the best and most trustworthy troops to the Indian Army.

Silurians. A dark, round-skulled, short race who inhabited South Wales and the neighbouring districts of England in Roman times. They were probably of Iberian stock, related to the ancient Picts and modern Basques.

Sindis. Natives of Sind in North-West India, of Hindu descent.

Singphos. A wild, daring hill-tribe of Tibetan stock bordering on the Assam valley, formerly given to raiding, but now peaceful agriculturists. The Chins of the Arakan uplands are probably an identical race; they are still predatory.

Sinhalese. See DRAVIDIANS.

Siouan. A numerous and formerly powerful group of North American Indians, inhabiting the western prairies between the Mississippi and the Rocky Mountains. Their chief tribe was the Sioux or Dakotas, warriors of fine physique, courage, and military skill, who long maintained a successful resistance against the white settlers. Other allied tribes were the Assinaboins, Omahas, Poncas, Kaws, Osages, Quapaws, Iowas, Otoes, Missouris, Winnebagos, Mandans, Minnetarees, Absarakas or Crows, Tutelos, and Catawbas.

Sioux, or **Dakotas.** See SIOUAN.

Siryanians. A tribe of Ugrian Finns, dwelling on both sides of the Northern Urals, resembling the Samoyedes (*q.v.*), except in their white colour and fair hair, probably due to a mixture of Slavonic blood. See FINNO-UGRIAN.

Slavonic Races, Slavs or **Slavonians.** A main stock of the Aryan family, occupying the greater part of Eastern Europe, and formerly extending as far west as the Elbe. Many ethnologists consider them to be the primitive Aryan stock. They are a peaceful and industrious agricultural and pastoral race, broad-skulled, with fair hair and blue eyes; though the primitive type has been much modified by intermixture of blood, especially with Mongolic races, who have imprinted a Tartar character on many Slavonic physiognomies. The Slavs are divided into Eastern (Russians and Ruthenians), Western (Czechs and Slovaks, Poles and Wends or Sorbs), and Southern (Bulgarians, Servians, and Croats, Dalmatians, Slovenians, and Montenegrins). See under these heads.

Slovaks. See CZECHS.

Slovenians. A branch of Southern Slavonic stock, inhabiting Styria, Carinthia, and adjoining districts.

Solimas. See TEMNE GROUP.

Somalis. An Eastern Hamitic race of Somaliland in North-East Africa. They are a pastoral people, of good physique, handsome features, and light-brown colour, warlike and independent. The original Hamitic stock—closely akin to that of the Gallas (*q.v.*)—is modified by Semitic and Negro blood. They make excellent soldiers and servants.

Sonrhays. A Negro race of the Middle Niger, in whom the Sudanese stock is modified by Arab and Berber elements.

Sorbs. See WENDS.

Soyots. A tribe of Ugrian Finns, mixed with Tartar blood, in the Sayan Mountains of South Siberia. See FINNO-UGRIAN.

Spaniards, or **Spanish.** The earliest known race of Spain was the Hamitic Iberians (*q.v.*), now represented by the Basques. They were modified by Celtic invasions, which gave birth to the Celt-Iberian races of Central and Western Spain, who struggled so long against the Roman arms, by which they were finally subjugated and further modified. In the fifth century the Vandals and Visigoths (*q.v.*) invaded Spain, and founded a Gothic monarchy, which fell before the Saracens in 711. The Visigothic refugees in the northern mountains gradually recovered the country, and the kingdoms of Leon, Navarre, Castile, and Aragon were ultimately united into a single state. The modern Spaniards are thus of mixed

race, in which the Iberian and Visigothic are the predominant elements. They are haughty, brave, and warlike, by which qualities they once owned the greatest power in Europe. But they are turbulent and lacking in political skill, so that Spain has decayed. There are now signs of a return to prosperity.

Spanish Americans. White natives of Central and South American States, except Brazil.

Spartans. Natives of Sparta, the greatest state of ancient Greece after Athens, of Dorian stock, eminently warlike and patriotic, but wanting in art or literature.

Sudanese. Full-blooded Negroes inhabiting the Western, Central, and Eastern or Egyptian Sudan—*i.e.*, most of Africa north of the Victoria Nyanza They are black in colour, with woolly hair, projecting jaws, long skulls, broad, flat feet and projecting heels, and form one of the main divisions of Ethiopic Man. They are less intelligent and susceptible of civilisation than the Bantus (*q.v.*), in whom the Negro blood is modified by Hamitic or Semitic admixtures. They are mostly of strong physique, warlike and predatory, fond of music and bright colours, with the most elementary notions of art and religion. They may be divided for convenience into several racial groups (*q.v.*), such as Wolof, Felup, Toucouleur, Mandingan, Temné, Nigerian, Nilotic, Liberian, Lake Chad, Wadai, Welle, Nuba, and Nilotic, besides the Tshi, Ga, Ewe, and Yoruba peoples of the Guinea district.

Suevi. See SWABIANS.

Sundanese. Natives of the Sunda Islands, of Malayan stock, closely allied to Javanese (*q.v.*).

Susus. See MANDINGAN.

Sutughils. See MAYA-QUICHE.

Swabians. Natives of Swabia, an ancient duchy occupying the south-western part of the modern German Empire; descended from the ancient Suevi, with whom the Alemanni (*q.v.*) were amalgamated. A strong, large-boned, and good-humoured race of High German stock. The Alsatians are closely allied to them.

Swahilis. Natives of Zanzibar and the adjoining mainland, Bantu Negroes, with a strong infusion of Arab blood, which has made them superior in intelligence and enterprise to the average negro. They play a large part in the commerce of East Africa, and their language—Ki-Swahili—is the principal medium of communication throughout the part of Africa between the Equator and the Zambesi.

Swazis. Natives of Swaziland, a native state on the south-east of the Transvaal. A cross between Zulus and other Kafirs, they are industrious and warlike.

Swedes. Natives of Sweden, a branch of the Scandinavian stock. They seem to have been originally a Teutonic race, who entered Northern Sweden about 3,000 years ago, and drove out the aboriginal Lapps and Finns. The inhabitants of Southern Sweden were called Goths, and may have been the ancestors of the Teutonic Goths. In time they amalgamated with the Swedes, and formed one nation, which has been an independent kingdom through most of the Christian era. The Swedes are warlike, and successful in commerce and industry; they make good sailors, and possess a considerable literature.

Swiss, or Switzers. The prehistoric inhabitants of Switzerland were the unknown builders of the lake dwellings. At the dawn of history, in Cæsar's time, the country was largely occupied by a Celtic race, the Helvetii. Later, Switzerland was invaded by Teutonic races of High German stock, Alemanni, Burgundians, etc. The modern Swiss are mostly descended from these races; there is also a considerable mixture of French, Italic and Romansch elements. The Swiss have always been a warlike race, who preserved the independence of their mountainous country through all ages, and in earlier times furnished excellent mercenary soldiers to foreign armies. They are now very industrious and successful in many arts and crafts, such as watchmaking, wood-carving, hotel-keeping, etc. They are a simple and handsome race, possessing in full measures the virtues of the mountaineer.

Syrians. The ancient Syrians were a branch of the Aramæan stock of the Semitic family, and the modern Syrians are their descendants, with some Arab and Turkish elements added. They are tall, with white skins and dark complexions, black eyes and hair, often very handsome, and approaching the Jewish type. They are not warlike, but succeed in commerce.

Tacullis. See ATHABASCAN.

Tahitians. Natives of Tahiti, of Polynesian stock; pleasure-loving and polite, but immoral and untrustworthy; now civilised but formerly noted for their cruelty.

Taipings. The Chinese rebels who attacked the dynasty from 1850 to 1864.

Tajiks. See PERSIANS.

Talaings. An Indo-Chinese race who preceded the Burmese in the Irawadi Delta, and founded a state of which Pegu was the capital. They were subjugated by Burmese in the eighteenth century.

Talamancas. Wild hunting Indians, perfectly uncivilised, who occupy the forest-covered Atlantic slopes of Costa Rica.

Tamils. Natives of Northern Ceylon and the Indian Carnatic. See DRAVIDAS.

Taos. See PUEBLO INDIANS.

Tanguts. Nomadic Mongols of Northern Tibet. See SHARRAS.

Tarahumaras. See OPATA-PIMA.

Tarascans. A group of Indian tribes inhabiting the province of Michoaca in Mexico.

Tartars or Tatars. The modern Tartars are inhabitants of the Russian Empire, belonging to the Turki stock of the Northern Mongolic family. They are divided into various geographical subdivisions, such as the Kazan, Astrakhan, Crimean (or Krim) Caucasian and Siberian Tartars. The name has no definite ethnical significance. The Tatars—a Manchu word meaning "archers" or "nomads"—were Mongol tribes who were first so named in the ninth century. They formed a large part of the hordes of Genghiz Khan [see MONGOLS] and stood in the van of the mediæval Mongol incursions into Europe, whence they attracted an attention out of proportion to their importance. Europeans called them Tartars, confusing the name Tartar with the Greek Tartarus or Hell. See TURKI.

Tasmanians. The extinct aborigines of Tasmania, akin to the Australians (*q.v.*), but of a still lower Oceanic Negro type. They held a place at the very bottom of humanity, alike in physique, intelligence and culture, being still in the early Stone Age; savage, untamable, and degraded.

Tatars. See TARTARS.

Tats. See PERSIANS.

Tavastians. A branch of the Baltic Finns, with thick-set figures, small blue eyes, light hair, and white skins, probably the consequence of an admixture of German blood with the original Finnish stock. They inhabit central Finland.

Tazis. See TUNGUSES.

Teguas. See PUEBLO INDIANS.

Tehuelches. Another name for the gigantic Patagonians (*q.v.*) of South America.

Telugus. See DRAVIDIANS.

Tembus, Amatembu, or **Tambukies.** A group of Kafir (*q.v.*) tribes in Tembuland, to the north of the Kei River in Cape Colony. Formerly warlike and troublesome, now settled to agriculture and subjected to British rule.

Temné Group. A group of Sudanese Negro tribes, inhabiting the Sierra Leone district of West Africa, including the Temnés or Timnis, Kissis, Sherbros, Gallinas, Bulloms, Solimas, Limbas, and Mendis.

Tepeguanas. See OPATA-PIMA.

Teutons. An important stock of the Aryan family, inhabiting England and the Scottish Lowlands, with the United States and British Empire, Germany, Holland, and parts of Austria and Switzerland, Denmark, Norway, and Sweden. The Teutonic races are divided into Low German and High German divisions, to which some add, but others do not, Scandinavians.

Thlinkits. A race of North American Indians inhabiting the Pacific coast from Mount St. Elias to the Simpson River, and the adjacent islands. They live chiefly by fishing and hunting.

Thos. An Indo-Chinese race of Lao descent [see SHANS], in the north of Tongking

Thracians. The ancient inhabitants of Thrace, on the west of the Black Sea. Their origin is dubious, but they are generally assumed to have belonged to the Aryan family, and been related to the Teutons and the Greeks. They were wild hill tribes, who acquired in later days a certain amount of Roman culture and spoke the Latin language. There is some probability that they were the ancestors of the Vlachs or Roumanians (*q.v.*).

Thuringians. A High German tribe inhabiting Thuringia in the fifth century, probably a branch of the Suevi (*q.v.*). Now merged into the modern Saxons.

Tibetans, or **Bod-Pa.** Natives of Tibet, forming the Tibetan stock of the Southern Mongolic family, and allied to the minor races of Lepchas, Baltis, Ladakhis, etc. (*q.v.*). The Tibetans are akin to the Burmese, with Mongolic features, broad-shouldered and muscular. They are a secluded and archaic race, with many curious customs, such as polyandry. Their religion is full of elaborate ceremonials, and the land abounds in monasteries.

Tibbus. A race inhabiting the oases of the Sahara, intermediate between Berbers and Negroes; perhaps descended from the ancient Garamantes (*q.v.*).

Timnis. See TEMNÉ GROUP.

Tinné, or **Tinney.** See ATHABASCAN.

Tobas. A warlike and predatory race of South American Indians on the Rio Vermejo in Bolivia.

Tocantins. See TUPI-GUARANI.

Todas. An isolated group of Caucasic race inhabiting the Nilgiri Hills, and distinguished from the neighbouring Dravidian tribes by their fine physique and regular features of Caucasic type; a dying race.

Togos. See EWE.

Toltecs. The oldest of Nahuan (*q.v.*) races, who established a semi-civilised State in Mexico before the Aztecs.

Tongans. See POLYNESIANS.

Tongas, or **Amatonga.** A Kafir race of peaceful agriculturists, occupying Tongaland, to the north of Zululand.

Tonkinese. A branch of the Annamese (*q.v.*), skilled in agriculture and dyke-building.

Toucouleurs. Sudanese Negroes of Senegambia, probably crossed with Hamitic blood; formerly dominant in the Western Sudan.

Tshi Group. A group of Sudanese Negro tribes of the Guinea Coast, including the warlike Ashantis, Fantis and Adansis.

Tuaregs. The predatory Berber (*q.v.*) Nomads of the Sahara.

Tudas. See DRAVIDIANS.

Tumalis. See NUBA GROUP.

Tunguses. A branch of the Mongol stock of the Northern Mongolic family, who lead a nomad existence in the mountains of East Siberia and the Amur region. They are of Mongolic physical type, with square skulls, low stature, and wiry, well-knit figures. They are distinguished by fine moral qualities, a fearless race of hunters, industrious, trustworthy, and self-reliant. Their main tribes are the Lamuts, or "sea people," Orochs, Chapogirs, Golds, and Tazis. The modern Tunguses probably represent the primitive stock of the Manchus (*q.v.*).

Tupi-Guarani. A wide-spread family of South American Indians, in Brazil, including numerous distinct tribes, of which the Chiriguanas of Bolivia, Caribunas of the Rio Negro, Paraguay Indians, Tupinambas of the Para coast, Mundrucus of the Tapajos, Omaguas, Goajiris and Tocantins, are the most important. They are copper-coloured, thick-set and muscular, with broad features, black hair and sometimes obliquely set eyes. They are of apathetic nature, and are slow to acquire civilisation.

Tupinambas. See TUPI-GUARANI.

Turanian. An ethnological term, now abandoned, roughly corresponding to the Northern Mongolic or Ural-Altaic family.

Turguts. See KALMUKS.

Turkanas. An African Hamitic race, allied to the Masais (*q.v.*), and dwelling between Lake Rudolf and the Nile.

Turki, or **Turks.** An important and wide-spread stock of the Northern Mongolic family, dwelling in Central Asia, Asia Minor, and in European Turkey. The primitive Turki stock —the Chinese Tu-kiu and ancient Turcæ— seem to have inhabited the Altai region as early as the second century B.C. Thence they spread far and wide, and founded many powerful and predatory, but unstable empires. The Huns (*q.v.*) who followed Attila were largely of Turki stock. Their chief modern race is that of the Ottoman Turks [see TURKS], who raised their empire on the ruins of Constantinople in 1453. Other Turki races are the Yakuts, Usbegs, Naimans Andijanis, Nogais, Tartars, Bashkirs, Kizil-Bashis, Anatolian Turks, etc. They are closely allied to the Kirghiz, Kipchaks,

Kara-Kalpaks and Turkomans (*q.v.*). The Turki physical type, of Mongol origin, has been modified by intermixture with Caucasic races.

Turks, Osmanlis, or **Ottoman Turks.** The dominant inhabitants of the Turkish Empire in Europe and Asia Minor, the most powerful of Turki races. They trace their descent from the Seljuks, a confederacy of Turki tribes who were settled on the Jaxartes in the eleventh century, and there adopted Islam. They conquered Persia and established kingdoms in Syria—the great Saladin was one of their princes—and Asia Minor, or Anatolia. The true Ottoman Turks entered the service of the Seljuk rulers in the thirteenth century, being driven from Kharasan by the advance of the Mongol hordes, and under Othman and his successors they became the dominant Turk race. They reared a great military power, and soon invaded Europe, where they destroyed the Eastern Empire in the middle of the fifteenth century and founded the still existing Turkish Empire. The Ottoman Turks are proud, ignorant and fanatical, but honourable and upright. They make admirable soldiers, when properly led, but are surpassed in the arts of peace by their subject races, Greeks, Bulgarians, Jews, etc.

Turkomans. A race of Turki nomads who inhabit the steppes east of the Caspian and south of the Oxus. They include such tribes as the Chaudors, Tekkes (Akhal and Merv), Salors, Yomuds, Goklen, and Ali-Elis. They were formerly noted for their predatory and man-stealing habits, but under Russian rule have been forced to live a more peaceful life. *m*

Tusayas. See PUEBLO INDIANS.

Tuscaroras. North American Indians. See IROQUOIAN.

Tushis. See CHECHENZES.

Tushilange. A branch of the Baluba (*q.v.*).

Tutelos. See SIOUAN.

Tyrolese. Natives of the Tyrol, the ancient Rhaetia, a mountainous district now belonging to the Austrian Empire. They are of High German Teutonic stock, and are noted for their patriotism and bravery, illustrated by their resistance under Hofer to the arms of Napoleon. They are industrious and thrifty, but backward in education, and devout Catholics.

Tyrrhenes. An ancient pre-Hellenic race of Greece, found in Thrace and Etruria, who probably belonged to the Pelasgian stock of the Hamitic family, giving birth to the Etruscans (*q.v.*).

Ugrian. A branch of the Finno-Ugrian stock (*q.v.*) including the Samoyedes, Voguls, Ostyaks, Soyots and Siryanians of Siberia, the Permian Finns of Russia, and the Magyars of Hungary. See under these heads.

Umbquas. See ATHABASCAN.

Umbrians. An ancient Italic race, perhaps allied to the Etruscans (*q.v.*) or the Samnites, afterwards subjugated by Rome.

Ural-Altaic. A term applied to the Northern Mongolic family of races, corresponding nearly to the older Turanian. It includes the Mongol, Turki, Finno-Ugrian, Siberian, and Koreo-Japanese stocks.

Uruts. See SHARRAS.

Utahs. See SHOSHONEAN.

Uzbegs. Nomadic Turki race of the Oxus Basin.

Vaalpens. A Negrito race of the Kalahari Desert, probably a half-breed between Bechuanas and Bushmen, formerly the serfs of the dominant Bantu races, but now freed under British rule.

Vandals. A Teutonic race, settled at the dawn of the Christian era in North-east Germany between the Oder and the Vistula. Like the Goths, whom they physically resembled, they were a warlike and roving race. Early in the fifth century they invaded Gaul and formed a settlement in Spain, where Andalusia (anciently Vandalitia) preserves their name. Later, under the fierce Genseric, they crossed to Africa and over-ran Mauretania, where they established a short-lived piratical Empire. In 534 it was destroyed by a Byzantine army under Belisarius, and the Vandals thereafter disappeared as a separate race. Their name has become a by-word on account of their turn for devastation.

Vaudois. See WALDENSES.

Veddahs. A primitive hunting people of Ceylon, who are sometimes classed as Dravidian, but more probably represent the still older (Negrito ?) aborigines of the island. They are dwarfish, of dark complexion, with features intermediate between the Hindu and Papuan types. They rank among the rudest and least civilised of races, being equally unable to laugh, count, or cook. They are dying out.

Veis, or **Vey.** A Sudanese Negro race, of Mandingan stock, on the West Coast of Africa, who are said to be the only Negro race who have invented an alphabet.

Venezuelans. White natives of Venezuela, of Spanish descent. Most of them are crossed with Indian blood.

Vikings. See NORSEMEN.

Visigoths. See GOTHS.

Voguls. A nomadic Finno-Ugrian race who inhabit both slopes of the Urals. They closely resemble the Ostyaks and Samoyedes (*q.v.*). *m*

Vuaregga, Vuarua, Vuarunga, Vuavinza. Bantu Negro tribes inhabiting the Congo basin and the Tanganyika district.

Wachaga. A predatory Bantu race on the southern slopes of Kilimanjaro.

Wadai Group. A group of Sudanese Negro tribes inhabiting Wadai and East Darfur, including Birkits, Massalits, Korungas, Mabas (mixed with Hamitic blood), and other tribes. They are mainly of pastoral habit.

Waganda. A Bantu Negro race who founded the kingdom of Uganda and attained a remarkable degree of civilisation before the arrival of white men. They are very intelligent, and their skill in the industrial arts has caused them to be called the Japanese of Africa. They are also warlike, and formerly indulged in frequent plundering and slave hunting raids among the surrounding races.

Wagogo. A Bantu Negro race of German East Africa.

Wahehe. See WASAGARA.

Wa-Huma. A conquering pastoral race, of Eastern Hamitic stock, who migrated from Gallaland and penetrated as far south as Unyamwezi, founding various kingdoms on the way. They are of Hamitic features, fair complexion, and tall stature; very warlike. The ruling classes of Uganda and Unyoro are of Wa-Huma origin. The Wa-Huma are a branch of the Gallas (*q.v.*). Among their tribes are the Wajiji, Warundi, Waruanda, etc.

Wajiji. See WA-HUMA.

Waldenses, or **Vaudois.** A heretical sect which originated in the South of France in the twelfth century, and was formed into a separate race by persecution; of French, Swiss, and Italian elements. They are now settled in Savoy.

Walloons. Natives of South-eastern Belgium, of mixed Celtic and Romanic stock, probably descended from the ancient Belgae (*q.v.*). They are tall, bony, and of strong physique, and are very successful in industry, as shown in the great manufacturing town of Liege.

Wanyamwezi. A warlike Bantu race of German East Africa, who formerly composed a powerful predatory state.

Wanyoro. Natives of Unyoro, in British East Africa, of Bantu race, skilled in industrial arts, and formerly allied with Arab slave-traders.

Wapisianas. See ARAWAKS.

Wapokomo. The chief Bantu race of the Tana basin, skilled boatmen and hunters, formerly under Masai domination, now acquiring civilisation under British rule.

Warraus. An aboriginal Indian race of British Guiana.

Warua. A powerful, warlike, and barbarous Bantu race of the Lualaba district in the Congo Free State, forming a powerful native state, and skilled in industry and rude art.

Waruanda, Warundi. See WA-HUMA.

Wasagara. A warlike and widespread Bantu people of German East Africa; fierce mountaineers, much given to marauding. The Wahehe, who claim Zulu affinities, are one of their tribes.

Waswahili. See SWAHILIS.

Wataveita. A mild and settled agricultural Bantu race inhabiting the slopes of Kilimanjaro in German East Africa.

Welle Group. A group of Sudanese Negro races inhabiting the region of the Upper Welle River in Central Africa, including the cannibal Niam-Niam, or Azandeh, the Mangbattu, Nsakkara, Amadi, Ababua, and other tribes.

Welsh, or **Cymry.** The chief surviving branch of the Brythonic or P Celts, inhabiting Wales, where they preserve their ancient language and customs. They probably represent the ancient Britons who inhabited England at the time of the Anglo-Saxon immigrations. "An old and haughty nation, proud in arms."

Wends. A stock of the Western Slavonic family, settled in the north and east of Germany in the sixth century. They were gradually absorbed by the Teutonic Germans. A remnant of the Wendish race, preserving their ancient language and customs, survives in Lusatia, on the borders of Saxony and Prussia, where they are also known as Sorbs.

Winnebagos. See SIOUAN.

Wochuas. See PYGMIES.

Wolofs. Sudanese Negroes, dwelling between Lower Senegal and Gambia; very black, but with regular features, indicating a trace of Hamitic blood. Their chief branch is that of the Jolofs.

Wulwas. See LENCAN.

Xanthochroi. A suggested division of Caucasic Man, opposed to the Melanochroi, characterised by fair hair, blue eyes, and rosy complexion. It would thus include the Teutonic, Scandinavian, and Slavonic stocks of the Aryan family.

Xosas, or **Amaxosa.** The southern stock of the Kafir race (*q.v.*), allied to the Zulus, or northern stock. They are eminently warlike, and have an interesting system of social organisation. They are of Bantu origin, immigrants from the north, who have dispossessed the Hottentot or Bushman aborigines. They are tall, well-built, and muscular, with Negro features and complexion, and woolly hair. They are semi-nomadic cattle-breeders and hunters, but many have taken to the settled pursuits of agriculture. They were long at war with the British and Boer settlers, but are now a peaceful and contented people under British rule.

Yakuts. A Mongolic race of Turki stock, inhabiting the province of Yakutsk in East Siberia. They are of middle height, with black hair, flat noses, and narrow eyes. They are laborious and enterprising, and show more aptitude for civilisation than the Buriats or Tunguses. They inhabit log "yurtas" in winter, but camp out in summer. Cattle-breeding, and to a less degree agriculture, are their chief occupations.

Yankees. Natives of the New England States. In a wider sense, the northern inhabitants of the United States.

Yaos. Agricultural aborigines of French Indo-China, perhaps allied to the Chinese proper.

Yedinas. See LAKE CHAD GROUP.

Yomuds. See TURKOMANS.

Yorubas. A group of Sudanese Negro races inhabiting the eastern half of the Slave Coast district, and united by a common Yoruba language, though much broken up by political feuds. They are peacefully disposed, industrious, and friendly to strangers. Their main pursuit is agriculture, but they also practise many industries; they are the best architects in Africa. Their chief tribes are those of Egba, Jebu, Oworo, Ondo, Ife, and Oyo. Abeokuta, the Egba capital, owes its fame to the success with which it held out as a city of refuge against the slave-hunters of Dahomey and Ibadan.

Yukaghirs. A nomadic tribe of north-east Siberia, probably identical with the Tunguses (*q.v.*).

Yumas. See OPATA-PIMA.

Yuruks. A nomadic Turki race in the Konia vilayet of Turkey-in-Asia

Yusufzais. See AFGHANS.

Zambos. See SAMBOS.

Zaparos. South American Indians, on the Upper Napo in Peru.

Zapotecs. Central American Indians of Oajaca in Mexico.

Zendals, Zotzils. See MAYA-QUICHE.

Zulus, or **Amazulu.** A very warlike Bantu race, allied to the Xosas and other Kafir tribes, whom they resemble in physique and organisation. Originally a small Kafir clan, the Zulus were raised to eminence at the beginning of the nineteenth century by the genius of Tchaka, a kind of Negro Napoleon, who established a severe military despotism, and dominated South Africa from the Zambesi to Cape Colony by the courage and military skill of his regiments. Tchaka's descendants ruled Zululand proper, and waged war against Kafirs, Boers, and English, until their country was annexed by Britain in 1887. The Zulus are both physically and mentally one of the finest of African races.

Zunis. See PUEBLO INDIANS.



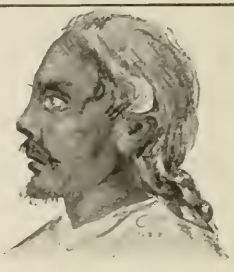
1. Anglo-Saxon
2. Finn
3. Celtic
4. Bulgarian
5. Greek
6. Caucasian
7. Tartar
8. Arab
9. Fellah
10. Berber
11. Syrian
12. Afghan
13. Javanese
14. Malay
15. Ladrone Islander
16. Hindu
17. Samang
18. Negrito



19. Chinese



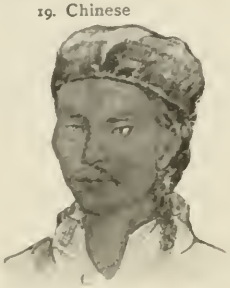
20. Japanese



21. Tartar



22. Aleutian



23. Kalmuck



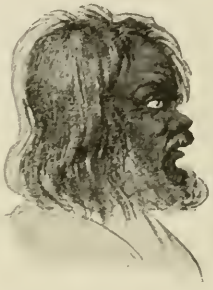
24. Kamchadale



25. Aleoutian



26. Esquimau



27. Ainu



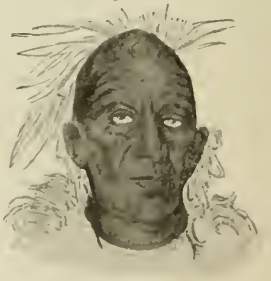
28. Samoyede



29. Koriak



30. Stone Indian



31. Otoe Indian



32. Kutchin Indian



33. Chili Indian



34. Yucatan Indian



35. Fuegian



36. Jeba Negro



37. Beja



38. Sahara Negro



39. Hottentot



40. Kafir



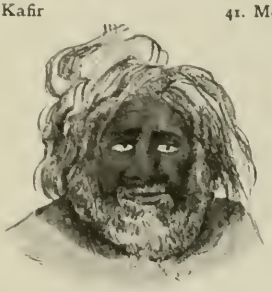
41. Mozambique Negro



42. North Australian



43. West Australian



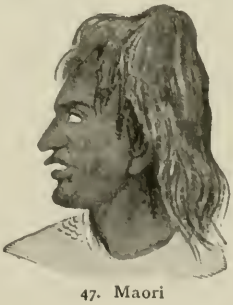
44. South Australiau



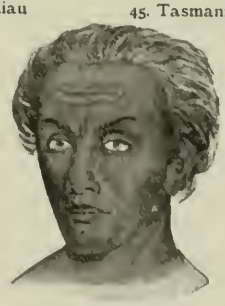
45. Tasmanian



46. Tikopia Islander



47. Maori



48. Samoan



49. Melanesian (Vanikoro Island)



50. Melanesian (New Hebrides)



51. Fijian

ETHNOLOGICAL CHART OF THE HUMAN RACE

This Chart, intended for reference in connection with the Dictionary of Races beginning on page 311, gives a view of the various main divisions, families, and stocks into which the human race is divided by ethnologists. It is impossible to give a complete list of the individual races within the necessary limits, but the chief typical races are named under each stock in the right-hand column. The races marked with an asterisk are extinct

ETHIOPIC DIVISION

Family	Stock	Typical races
African Negro	*Sudanese*	Mandingan, Ashanti, Hausa, Azandeh
	Bantu	Herero, Wanyamwezi, Basuto, Waganda, Ama-Xosa (Kafir), Zulu
	Hottentot-Bushman	Nama, Griqua, Bushman
African Negrito	*Pygmy*	Wochua, Akka, Obongo
Oceanic Oceanic-Negro	*Papuan*	New Guinea natives
	Melanesian	Fijian, Solomon Islanders
	Australian	Australian aborigines, Tasmanian*
Oceanic Negrito	*Negrito*	Andamanese, Sakai, Aeta

MONGOLIC DIVISION

Family	Stock	Typical races
Northern Mongolic	*Mongol*	Sharra, Kalmuk, Buriat, Tungus
	Turki	Turks, Tartars, Bashkirs, Kirghiz, Turkoman
	Finno-Ugrian	Samoyede, Magyar, Finn, Bulgar, Lapp
	Siberian	Chukchi, Kamchadale
	Korco-Japanese	Korean, Japanese
	Dravidian (?)	Tamil
Southern Mongolic	*Tibetan*	Tibetan, Balti, Lushai
	Indo-Chinese	Burmese, Siamese, Bhil, Annamese
	Chinese	Chinese, Punti, Lolo
Oceanic Mongolic	*Malaysian*	Malay, Dyak, Javanese
	Malagasy	Hova
	Philippine	Visayan, Ilocano
	Formosan	

AMERICAN DIVISION

Family	Stock	Typical races
Arctic	*Eskimo*	Eskimo, Aleutian
North American Indian	*Athabascan*	Apache, Navajo
	Algonquian	Delaware, Mohican, Blackfoot
	Iroquoian	Huron, Mohawk, Cherokee
	Thlinkit	Thlinkit
	Haida	Haida
	Chinook	Chinook
	Siouan	Sioux, Dakota, Omaha
	Shoshonean	Shoshone, Utah, Comanche, Pawnee
	Muskhogean	Choktaw, Seminole
	Natchez	Natchez*
	Kiowa	Kiowa
	Salish	Flathead
	Pueblo	Zuni, Taos
Central American Indian	*Otomi*	Otomi
	Opata-Pima	Cora, Tarahumara
	Guaicuri	Guaicuri
	Tarascan	Tarascan
	Nahuan	Toltec, Aztec, Mexican
	Maya-Quiché	Maya, Quiché, Huastec
	Lencan	Chontal, Guatusa
	Bribri	Bribri
	Talamanca	Talamanca
	Zapotec	Zapotec
	Miztec	Miztec
	Chorotegan	Chorotegan
South American Indian	*Inca*	Quichua, Chanca
	Aymara	Aymara
	Chibcha	Chibcha
	Choco	Choco
	Zaparo	Zaparo
	Jivaro	Jivaro
	Mojo	Mojo
	Chiquito	Chiquito
	Barré	Barré
	Charrua	Charrua*
	Chuncho	Chuncho
	Conibo	Conibo
	Carib	Macusi, Rucuyenne
	Arawak	Maypuri, Wapisiana
	Warrau	Warrau
	Botocudo	Botocudo
	Tupi-Guarani	Paraguay, Caribuna, Tupinamba
	Payagua	Payagua
	Matacoan	Matacoan
	Toba	Toba
	Araucanian	Araucanian
	Puelche	Puelche, Gaucho
	Patagonian	Patagonian
	Fuegian	Fuegian

CAUCASIC DIVISION

Family	Stock	Typical races
Hamitic	*Eastern*	Egyptian, Somali, Galla, Masai
	Western — Numidian	Berber
	Western — Iberian	Basque, Pict*
	Western — Ligurian	Corsican
	Western — Pelasgian	Mycenæan*, Etruscan*
Semitic	*Assyrian*	Chaldæan*
	Aramæan	Syrian, Hittite*
	Canaanite	Israelite, Phœnician*, Carthaginian*
	Arab	Arab, Bedouin
	Himyarite	Abyssinian
Aryan	*Hindu*	Punjabi, Bengali
	Iranian	Afghan, Persian, Armenian, Kurd
	Hellenic	Albanian, Greek
	Italic	Roman, Italian, French, Spanish, Portuguese, Latin American
	Keltic — Goidelic or Q Kelts	Irish, Manx, Highland Scottish
	Keltic — Brythonic or P Kelts	Welsh, Breton, Cornish*
	Lettic	Lithuanian, Lettish
	Slavonic	Russian, Czech, Polish, Servian
	Scandinavian	Norwegian, Swedish, Danish
	Teutonic — Low German	Old Saxon*, Dutch, Flemish, Anglo-Saxon
	Teutonic — High German	German, Saxon, Swiss, Austrian
Caucasian	*Southern*	Georgian
	Western	Circassian
	Eastern	Chechenz, Lesghian
Indonesian	*Polynesian*	Samoan, Maori, Marquesan
Ainu	*Ainu*	Ainu

MAKING OF THE NATIONS AND THE INFLUENCE OF NATURE



THE BIRTH & GROWTH OF NATIONS

BY PROFESSOR RATZEL

IN order that the cosmic conception of the life of man may be more than a mere isolated idea, incapable of being applied and developed, it is necessary to indicate the relation which human life bears to the collective life of the earth.

Human existence is based upon the entire development of vegetable and animal life; or, as Alexander von Humboldt said, in reality the human race partakes of the entire life on earth. Just as plants and animals, vegetable and animal remains and products, occupy an intermediate position between man and the inanimate substance of the earth, so almost without exception the life of man depends not directly upon the earth, but upon the animals and plants, which in turn are immediately bound to the earth by the necessities of existence. It is the dependence of later and more evolved types upon the earlier and less evolved. In 1845 Robert Mayer, the German scientist, published his epoch-making thesis on "The Relations of Organic Motion to Metabolism," in which he described the vegetable world as a reservoir wherein the rays of the sun are transformed into life-supporting material and are stored up for use. According to his view the physical existence of the human race is inseparably linked together with this "economic providence"; and he even went so far as to connect it with the instinctive pleasure felt by every eye at the sight of luxuriant vegetation.

Man is Bound up with the Earth

The history of mankind shows how various are the elements contained in this reservoir, and how manifold their action. Originally plants and animals share the soil with man, who must struggle with them for its possession. The plains favour and the forests obstruct historical movement; the inhabitant of the tropics is hardly able to overcome the growth of weeds that covers his field; for the Esquimau the vegetable world exists but two months in the year, and then only in stunted, feeble species. The unequal distribution of edible plants has in a large measure been the cause of divergence in the developments of different races. Australia and the Arctic countries have received almost nothing; the Old World has had abundance of the richest gifts showered upon it, Asia receiving more than Africa or Europe. The most valuable of domestic animals are of Asiatic origin. America's pre-European history is incomparably more uniform than that of the Old World, and this is owing to her moderate endowment of useful plants and almost complete lack of domestic animals. The transplanting of vegetable species from one part of the earth to another, carried on by man, is one of the greatest movements in the collective life of the world. Its possibilities of extension cannot be conjectured; for the successful diffusion of single cultivated plants—the banana, for example—over a number of widely separated countries is yet problematical. This process can never be considered to have come to an end so long as necessity forces man to get a firmer and firmer hold on the store of earthly life.

Man's Fight with Plants and Animals

Spreading Life Over all the Earth

The relations of man to the earth are primarily the same as those of any other form of life. The universal laws of the diffusion of life include also the laws of the diffusion of the human species. Hence the study of the geographical distribution of man must be looked upon only as a branch of the study of the geographical distribution of life, and a succession of the conceptions belonging to the latter.

To these conceptions belong the main area of distribution, the habitable world, and all its various parts : zones, continents, and other divisions of the earth's surface, especially seas, coasts, interiors of lands, bordering regions, divisions exhibiting continuity with others as links in a chain, and isolated divisions. Also relations as to area : the struggle for territory, variations in the life development in small or inextensive regions, in insular or in continental districts, on heights of land and plateaus, and, in addition, the hindrances and the aids to development presented by different conformations ; the advance development in small, densely populated districts ; or the protection afforded by isolated situations. All must be included. Finally, properties of boundaries must be conceived of as analogous to phenomena occurring on the peripheries of living bodies.

The Material Tie that Binds Men Together

As races are forms of organic life, it follows that the state cannot be comprehended otherwise than as an organised being ; every people, every state is organic, as a combination of organic units. Moreover there is something organic in the internal coherence of the groups and individuals from which a state is formed. However, in the case of a people and a state, this coherence is neither material nor structural ; states are spiritual and moral organisms. But, together with the spiritual, there is also a material coherence between the individual members of a race or a nation. This is the connection with the ground. The ground furnishes the only material tie that binds individuals together into a state ; and it is primarily for this reason that all history exhibits a strong and ever-increasing tendency to associate the state with the soil—to root it to the ground, as it were.

The earth is not only the connecting principle, but it is also the single tangible and indestructible proof of the unity of the state. This connection does not decrease during the course of history, as might be supposed, owing to the progressive development of spiritual forces ; on the contrary, it ever becomes closer, advancing from the loose association of a few individuals with a proportionately wide area in the primitive community, to the close connection of the dense population of a powerful state with its relatively small area, as in the case of a modern civilised nation. In spite of all disturbances, the economic and political end has ever been to associate a greater and greater number of individuals with the soil. Hence the law that every relation of a race or tribe to the ground strives to take a political form, and that every political structure seeks connection with the ground. The notion of an unterritorial and a territorial epoch in the history of man is incorrect ; ground is necessary to every form of state, and also to the germs of states, such as a few negroes' huts or a ranch in the Far West. Development consists only in a constant increase in the occupation and use of land, and in the fact that, as populations grow, so do they become ever more firmly rooted in their own soils.

The State and the Soil

At the same time the nature of the movements of peoples must change. Penetration and assimilation of one race by another occur instead of displacement of one by another ; and with the rapid decrease of unoccupied territory the fate of the late-comers in history is irrevocably sealed. Since the state is an organism composed of independent individuals and households, its decay cannot be analogous to the death and corruption of a plant or an animal. When plants decay, the cells of which they are composed decay also. But in a decayed state the freed individuals live on and unite together into new political organisms ; they increase, and the old necessity for growth continues in the midst of the ruin. The decay of nations is not destruction ; it is a remodelling, a transformation. A great political institution dies out ; smaller institutions arise in its place. Decay is a life necessity. Nothing could be more incorrect than the idea that the growth of nations would come to an end were one state to embrace the whole earth. If this were to happen, long before the great moment of union came, there would be

If One State Embraced the Whole Earth



THE PEOPLE OF THE MOUNTAINS: SHOWING THE INFLUENCE OF ENVIRONMENT ON CHARACTER

This picture, by Alexander Johnston, illustrates the keynote of Professor Ratzel's chapters on the influence of the earth on character. Johnston represents a marriage among the Scottish Covenanters, who, persecuted under the Stuarts, took to the moss-hags and the hills, of whose stern ruggedness their own stern independence was the outcome and counterpart.

a multitude of processes of growth already in operation, ready to rebuild in case of decadence, and to provide for a new organisation if needed. As yet the political expansion of the white races over the earth has not resulted in uniformity, but in manifoldness.

Earth and the Movements of Peoples

All conditions and relations of peoples and states that may be geographically described, delineated, surveyed, and, for the greater part, even measured, can be traced back to movements—movements that are peculiar to all forms of life, and of which the origin is growth and development. However various these movements may be in other respects, they are always connected with the soil, and thus must be dependent upon the extent, situation, and conformation of the ground upon which they take place. Therefore, in every organic movement we may perceive the activity of the internal motive forces which are peculiar to life, and the influences of the ground to which the life is attached. In the movements of peoples, the internal forces are the organic powers of motion common to all creatures, and the spiritual impulses of the intellect and will of man.

In many a view of history these forces alone appear; but it must not be forgotten that they are conditioned by the fact that they cannot be active beyond the general limits of life, and they cannot disengage themselves from the soil to which life is bound. In order to understand historical movements it is first necessary to consider their purely mechanical side, which is shown clearly enough by an inquiry into the nature of the earth's surface. Neglect of this occasions a delay in the understanding of the true character of such movements. Men merely spoke of geography, and treated history as if it were an atmospheric phenomenon.

Nations are movable bodies whose units are held together by a common origin,

National Emigrations in History

language, customs, locality, and often necessity for defence—the strongest tie of all. A people expands in one direction and contracts in another; in case of two adjacent nations, a movement in the one betokens a movement in the other. Active movements are responded to by passive, and vice versa. Every movement in an area filled with life consists in a displacement of individuals. There are also currents and counter-currents: when slavery was abolished in the Southern States of America, an emigration of white men from the South was followed by an influx of ex-slaves from the North, thus causing an increase in the black majority of the South.

Such external movements of peoples assume most varied forms. History takes a too narrow view in considering only the migrations of nations, looking upon them as great and rare events, historical storms as it were, exceptional in the monotonous quiet of the life of man. This conception of historical movements is very similar to the discarded cataclysmic theory in geology. In the history of nations, as in the history of the earth, a great effect does not always involve a presupposition of its being the immediate result of a mighty cause. The constant action of small forces that finally results in a large aggregate of effect must be taken into account in history as well as in geology. Every external movement is preceded by internal disturbance: a nation must grow from within in order to spread abroad.

Why Nations Must Seek New Homes

The increase of Arabs in Oman led to an emigration to East Africa along highways of traffic known to times of old. Merchants, craftsmen, adventurers, and slaves left their native land and drew together in Zanzibar, Pemba, and on the mainland. The process was repeated from the coast to the interior, and as a result of the aggregate labour of individuals as merchants, colonists, and missionaries, Arabian states grew up in the central regions of Africa. Instances of the occupation of vacant territories are of the greatest rarity in history as we are acquainted with it. The best example known to us is the settlement of Iceland by the Northmen. The rule is, a forcing in of the immigrating nation between other races already in possession; the opposition of the latter often compels the former to divide up into small groups, which then insinuate themselves peacefully among the people already established in the land.

The movements of nations resemble those of fluids upon the earth: they proceed from higher altitudes to lower; and obstacles cause a change of course, a backward flow, or a division. Though at first there may be a series of streams running along side by side, there is a convergence at the goal, as shown by the



THE NORTHMEN TAKING POSSESSION OF ICELAND

Instances of peoples taking possession of uninhabited lands and settling therein are extremely rare. Iceland is the best example known. The hardy Northmen took possession of it in the ninth century, but found the country untenanted.

migration of different peoples to a common territory; there is concentration when there are hindrances to be overcome, and a spreading out where the ground is level and secure. One race draws other races along with it; and, as a rule, a troop of wanderers come from a long distance will be found to have absorbed foreign elements on its way. But it would be wrong to look upon the movements of nations as passive onflowings, or even to deduce a natural law from the descent of tribes from the mountains to the river valleys and to the sea—an idea that once led to the acceptance of the theory of the Ethiopian origin of Egyptian civilisation. Either the wills of individuals unite to form a collective will, or the will of a single man imposes itself upon the aggregate. The human will knows no insurmountable obstacle within the bounds of the habitable earth.

The Human Will Knows no Obstacle

As time goes on, all rivers and all seas are navigated, all mountains climbed, and all deserts traversed. But these have all acted as obstructions before which movements have either halted or turned aside, until finally they have burst the barriers. At least two thousand years passed from the time of the first journey of a Phœnician ship out through the Pillars of Hercules into the Atlantic until the arrival of the day when a voyage across was ventured from Southern Europe. The Romans turned the Alps, both to the right and to the left, seven hundred years after their city had been founded, but how many nooks in the interior of those mountains were unknown to them even centuries later! Yet to-day Europe feels the effect of this circumstance, the fact that the Romans did not advance straight through the Central Alps into the heart of the Teutonic country. They followed a roundabout way through Gaul, and thus Mediterranean culture and Christianity were brought to Central Europe from the west instead of from the south; hence the dependence of the civilisation of Germany upon that of France.

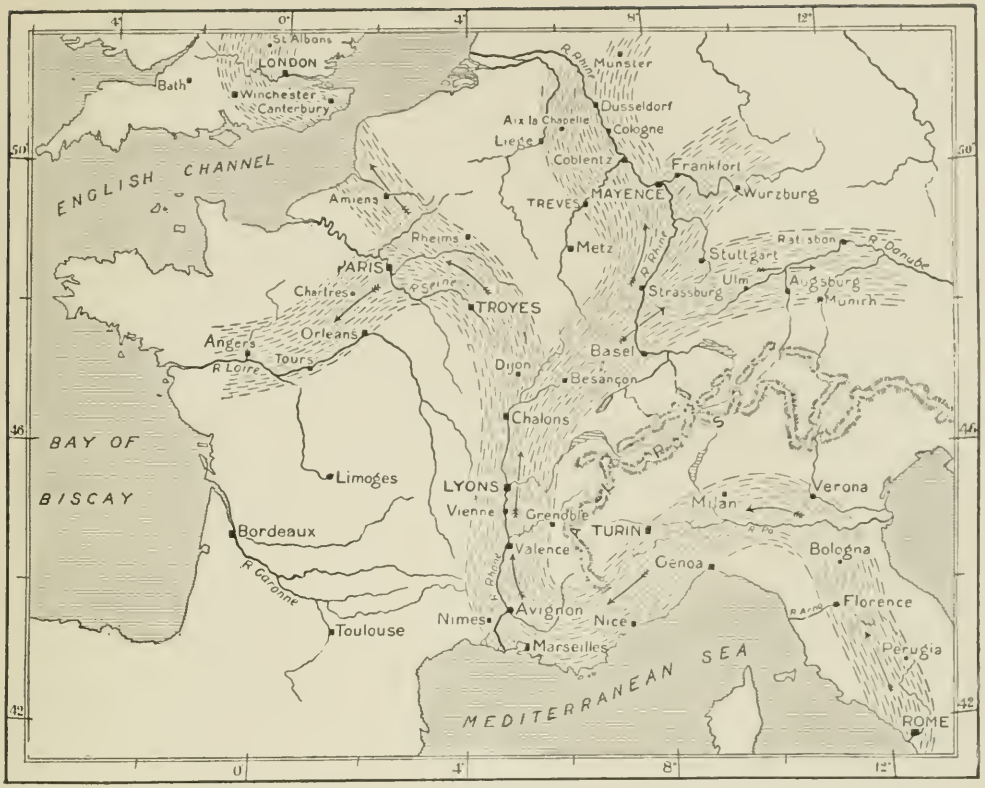
Bursting Nature's Barriers

It is precisely the Romans who, contrasted with barbarians, show us that will or design in the movements of nations does not necessarily increase with growth of culture, even though culture constantly puts more means of action at its disposal, improved methods of transportation, by which the way may be lightened. The mounted bands of Celts and Germans crossed the Alps quite as easily as did the Roman legions; and in spreading about and penetrating to every corner of the Alps and the Pyrenees, the barbarians were always superior to the Romans.

Wandering tribes of semi-civilised people are smaller, less pretentious, and less encumbered. In every war that has taken place in a mountain land, the greater mobility of untrained militia has often led to victories over regular troops. Races of inferior culture are invariably more mobile than those of a higher grade of civilisation; and they are able to equalise the advantages of the superior modes of locomotion with which culture has supplied the latter. Mobility also indicates a weaker hold upon the ground, and thus uncivilised peoples are more easily dislodged from their territories than are nations capable of becoming, as it were, more deeply rooted. In nomadic races, mobility bound up with the necessity for an extensive territory assumes a definite form, and, owing to a constant preparedness for wandering and to the possession of an organised marching system, such peoples have been among the greatest forces in Old World history.

The Great Wanderers of the Earth

Movements of nations are often spoken of as if certain definite directions were forced upon them by some mysterious power. This view not only wraps itself in the garment of prophecy—for example, when announcing that the direction in which the sun travels must also be that of history—but it formally presupposes a necessary east-to-west progression of historical movements, endeavouring to substantiate its doctrine by citation of examples, from Julius Cæsar to the gold-seekers of California. But this necessity remains always in obscurity. Not only is it contradicted by frequently confirmed reflex movements in historical times, but it is also disproved still more by the great migrations which have taken place on the same continent in contrary directions. In Asia the Chinese have spread over the entire area of interior plain and desert, westward to the nation-dividing barriers of the Pamir Mountains: other Asiatic races have overflowed into Europe—also from east to west. Contrariwise, ever since the sixteenth century we have seen



HOW CIVILISATION SPREAD THROUGH EUROPE

The inexorable influence of physical conditions on the life of the peoples is well illustrated by the influence of the Alps in deflecting the path of Mediterranean culture. These mountains hemmed in the north of the Roman Empire and forced the Romans, in their expansion, to the west. Hence Mediterranean culture and Christianity were carried to Central Europe from the west instead of from the south, and the civilisation of Germany depends on that of France. The map shows the route followed by the stream of Roman civilisation.

the Russians at work conquering the entire northern part of the continent, constantly pressing on towards the east. Even the sea proved no obstacle, for they both discovered and acquired Alaska during the course of this same movement.

We shall not attach any universal significance to such fashionable terms employed in historical works as political or historical attraction, elective affinity or balance; least of all shall we presume to discover occult, mysterious sources for them. It is obvious that a powerful nation will overflow in the direction of least resistance; and in the case of a strong Power confronting one that is weak there is a constant movement toward the latter. Thus, from the earliest times, Egypt has pressed on toward the south; and everywhere in the Sudan we find traces of similar movements to the south as far as Adamawa, where they are still to-day in energetic continuance. The history of colonisation in America shows a turning of the streams of immigration, in the south as well as in the north, towards the more thinly settled regions; the more thickly populated are avoided. The migrations of nations, which took place during periods of history when a surplus of unoccupied land existed, were determined to a great extent by natural causes. The more numerous nations become, the greater the obstacles to migration, for most of these obstacles arise from the very nations themselves.

Nations increase with their populations; lands with enlargement of territory. So long as a country has sufficient area, the second form of growth need not of necessity follow the first—the race spreads out over the gaps which are open in the interior, and thus internal colonisation takes place. If there is need for emigration, occupiable districts may be found in the lands of another people—for centuries Germans

have thus found accommodation in Austria, Hungary, Poland, and America.

Of course, such colonists gradually become absorbed into the people among whom they have settled. This is simple emigration, which is therefore connected with the internal colonisation of a foreign land. External colonisation first comes into being when a state acquires territory under its control, into which territory, if it be suitable, a portion of the inhabitants of the state move and settle. Colonisation is not necessarily a State affair from the first. If a race inhabit a country so sparsely as the Indians did America in the sixteenth century, a foreign people, having the power of spreading out, may press into the gaps with such success that this initial internal colonisation may also be advantageous from a political standpoint. The State then intervenes and appropriates the territory over which groups of its inhabitants have previously acquired economic control.

How New States are Born

The emigrants formed a social aggregate in the new country, and from this aggregate a state, or the germ of a state, develops. Since such an economic-social preparatory growth greatly assists in the political acquirement of land, it is obvious that this form of colonisation is especially sound and effectual. The opposite method follows when a state first conquers a territory which it occupies later with its own forces; this is colonisation by conquest. It can be capable of development only when subsequent immigration permanently acquires the land as a dwelling-place.

Conquest that neither can nor will take permanent possession of the soil is characteristic of a low stage of culture; thus the Zulu states in Africa, surrounded by broad strips of conquered yet uncontrolled territory, and the old "world-empires" of Western Asia, exhausted themselves in vain efforts to obtain lasting increase of area through aggressive expeditions. That the Roman Empire lasted a longer time than any of the preceding universal empires was due to the single fact that agricultural colonisation invariably followed in the footsteps of its political conquests.

Why Rome's Empire Endured Long

The enlargement of a nation's area is associated with soil and inhabitants. If the increase of territory—for example, through conquest—is much more rapid than the increase of population, an inorganic, loosely connected expansion results, which, as a rule, is soon lost again. If, on the contrary, population increases at a proportionately greater rate than area, a crowding together, checks to internal movements, and over-population follow. In consequence, great discrepancies between growth of territory and increase of population lead to the most varied results. The conquering nation expands over extensive regions for which there are no inhabitants. Passive races in India and in China become so crowded together that it is impossible for their soil to support them any longer; hence a continuous degradation and recurrent periods of famine, which may bring with them a relatively feeble and unorganised emigration.

There are nations with whom conquest and colonisation seem to follow in most profitable alternation: this appears to have been the case with all colonising countries of modern history that have followed the example of the Roman Empire. But there are great contrasts presented even by these nations. Germany, Austria, and Russia, in immediate connection with their conquered provinces, have colonised and expanded toward the east. In spite of a rapid increase of population, Germany has been backward in establishing transmarine colonies, while France, with a proportionately smaller increase of population, began by colonising in all directions, but occupied more land than she was able to master; for which reason colonisation in the history of France has taken more or less the character of conquest. England, on the contrary, with a vigorous emigration and an expansive movement in all directions, presents an example of the soundest and strongest method of founding colonies which has been seen since early times.

The Modern Nations as Colonisers

Through the entire course of history an ever-increasing value attached to land may be traced; and in the expansion of nations we may also see that mere conquest is growing less and less frequent, while the economic acquisition of territory, piece by piece, is becoming the rule. The getting of land assumes more and more the character of a peaceful insinuation. The taking possession of distant countries



THE EXPANSION OF THE WHITE RACES THROUGHOUT THE WORLD

This map illustrates the extent to which the white races have spread into other than their native lands. The pale tint, as on the British Isles, indicates the native land of the whites; the darker tint shows where whites have settled down; while the black portions represent those parts of the earth where the coloured races predominate.

without consideration for the original inhabitants, who are either driven away, or murdered—speedily with the aid of bullets, or slowly with the assistance of gin or contagious diseases or by being robbed of their best land—is to-day no longer possible. Colonisation has become a well-ordered administration combined with instruction of the natives in useful employments. The old method has left scarcely a single pure-blooded Indian east of the Mississippi in the United States, and not one native in Tasmania; the new method has before it the problem how to share the land with negroes—in the Transvaal with 74 per cent. and in Natal with 82 per cent. Climatic conditions are also to be taken into consideration, for Caucasians are able to develop all their powers in temperate regions only; a hot climate impels them to ensure the co-operation of black labour through coercion.

Some New National Problems

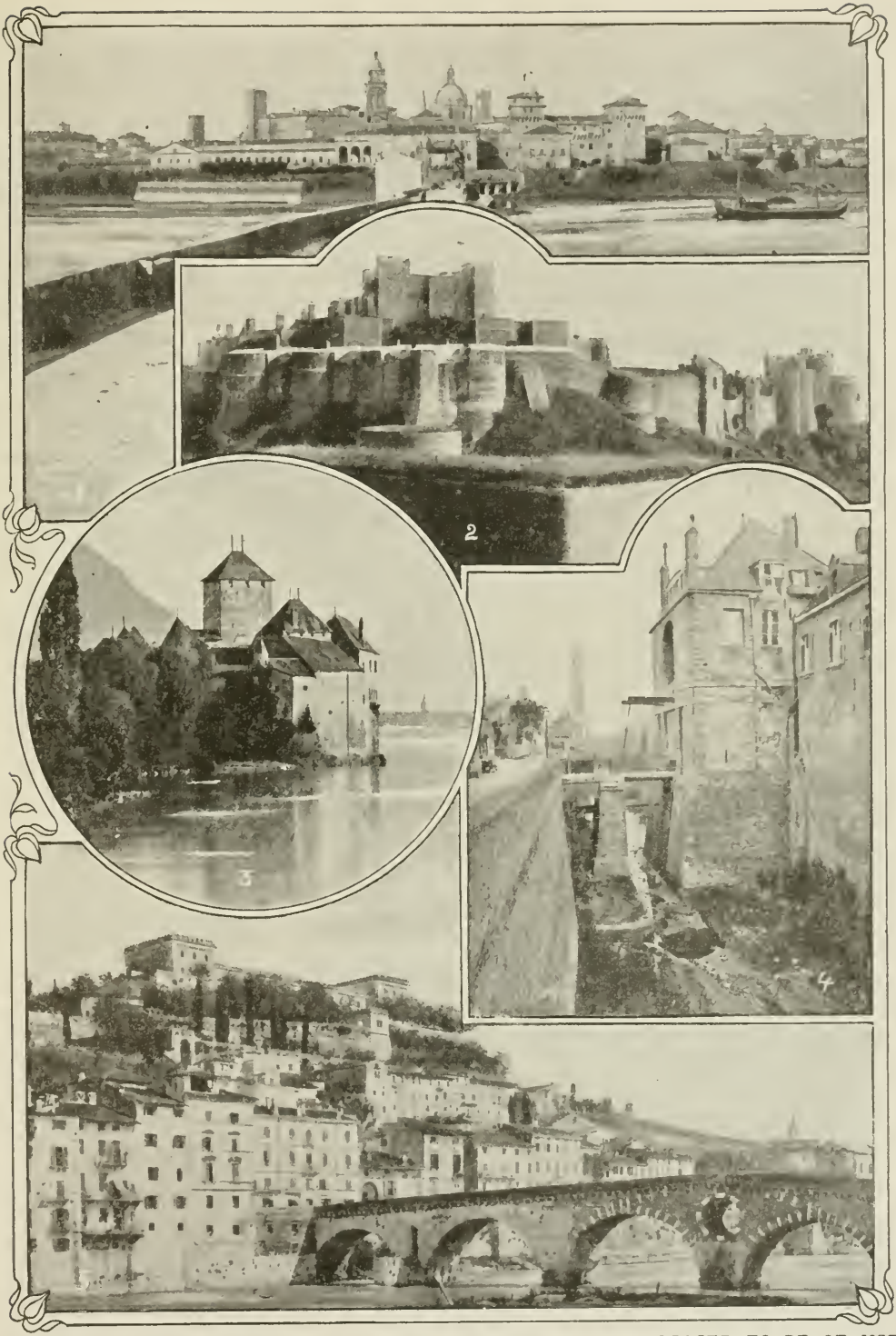
During the course of centuries a motley collection of countries has developed, all of which are called colonies, although they stand in most striking contrast with one another. Several are nations in embryo, to which only the outward form of independence is lacking; not a few have once been independent; and many give the impression that they will never be fit for self-government. There are some in which the native population has become entirely extinct, such as Tasmania, Cuba, and San Domingo; others in which the original inhabitants, still keeping to their old customs and institutions, are guided and exploited by a few white men only; and, finally, colonies in which the rulers and the natives have assimilated with one another, as in Siberia. Once upon a time such tokens of the youth of races as may be seen in rude but remunerative labour on unlimited territory were widespread in many colonies. But the new countries fill up visibly, and even they show that mankind, as a whole, ages the more rapidly the more the so-called progress of civilisation is hastened. However, an examination of the peoples of the present day shows that the differences in age between mother-countries and colonies will, indeed, continue for a long time yet. Such differences exist between west and east Germans as well as between New Englanders and Californians; they are even to be detected in Australia, between the inhabitants of Queensland and of New South Wales. Such differences are shown not only in the characteristics of individuals, but also in the division of land and in methods of labour.

Mankind Ages with Civilisation

Divergence and differentiation are the great factors of organic growth. They govern the increase of nations and states from their very beginnings. Since, however, these organisms are composed of independent units, differentiation does not consist in an amalgamation and transformation of individuals, but in their diffusion and grouping. Therefore the differentiation of nations becomes eminently an affair of geography. Never yet has a daughter people left its mother-country to become an independent state without a previous disjunction having taken place. All growth is alteration in area, and, at the same time, change in position. The further growth extends away from the original situation, the sooner dismemberment follows. In Australia, New South Wales spreads out towards the north, and at the new central point, Brisbane, a new colony, Queensland, is formed, which already differs materially from New South Wales. And Queensland itself expands towards the north, beyond the tropic of Capricorn into the torrid zone; and a younger, tropical North Queensland develops.

Nations Hold fast to Nature

The fact that nations hold fast to their natural conditions of existence, even when growth impels them towards expansion in various directions, is a great controlling force in historical movement. Russia expands in its northern zone to the Pacific ocean; England continues its growth on American soil, across the Atlantic, in almost the same latitude. The Phœnicians, as a coast-dwelling people, remained on the coasts and on the islands; the colonising Greeks ever sought out similar situations to those of their native land; the Netherlanders are found everywhere in Northern Germany as colonists of the moors and marshes. All German colonies beyond the Alps and the Vosges have disappeared; and the few Germans that remain are Latinised. Nations that are accustomed to a limited territory, as were the Greeks, always search for a similar limited area; on the other hand, the Romans discovered a main factor of empire-building in their judicious agricultural colonisation of broad plains;



LANDMARKS OF PAST AGES: FAMOUS FORTRESSES THAT HAVE CEASED TO BE OF USE
With the changing conditions of politics, places once of enormous importance have often become mere curiosities. There are in Europe to-day hundreds of useless castles, fortresses, and harbours. Even Dover Castle is of little strategic value. The fortresses illustrated are (1) Mantua, (2) Dover, (3) Chillon, (4) Calais, (5) Verona.
Photographs by Frith and Neurdein

and the Russians sought and found in Siberia the endless forests, steppes, and vast rivers of their native land. Every nation, in expanding, seeks to include within its area that which is of the greatest value to it. The victorious state acquires the best positions and drives the conquered race into the poorest districts. For this reason competition between the colonising nations has become very keen; they all judge of the character of territory according to the same standard. Therefore, wherever England has colonised, only a gleaning remains for the rest of the Northern and Central European Powers.

The Genius of the Coloniser

Differentiation, arising from the valuation of land, is the cause of a constant creation of new political values and of a constant lapsing of old. Every portion of the world has its political value, which, however, may become dormant, and must then be either discovered or awakened. Such a discovery was the selection of the Piræus as the harbour for Athens from among a number of bights and bays.

Every settlement and every founding of a city is at bottom an awakening of dormant political value. Capacity for recognising this value is a part of the genius of a statesman, whose policy may be called far-seeing partly because he is able to discern the dormant value while yet on the most distant horizon. It is obvious that political values vary; each is determined by the point of view from which it is looked upon. The French and the German valuations of the Rhine borderland are very different. Every nation endeavours to realise the political value which it recognises; and in respect to political growth, ends are set up in the shape of the portions of the earth to which that growth aspires. Peculiarities in the conformation of states may be traced back to an appreciation of the value of coasts, passes, estuaries, and the like. With the spreading out and the concentration of nations, such portions of the world as are important from a political point of view have marvellously increased both in number and in value. But for this very reason a choice of selection has become necessary, and this we see in the use of fewer Alpine passes during the age of railways than before, and in the concentration of a great commerce into fewer seaports—into such as are capable of accommodating vessels of the deepest draught. Others must withdraw from competition. To-day there are hundreds of worthless harbours, passes, and fortresses in Europe that were once situated on the highways of historical movement; now, however, they are avoided, deserted by the current of traffic.

The World is Being Centralised

There are more things necessary to an understanding of the dependence of history on natural conditions than a mere knowledge of the land upon which the development has taken place, particularly than a mere knowledge of the ground as it was when history found it. Although each country is in itself an independent whole, it is at the same time a link in a chain of actions. It is an organism in itself, and, in respect to a succession or a group of lands forming a whole, of which it is a member, it is also an organ. Sometimes it is more organism than organ; sometimes the opposite is true; and an eternal struggle goes on between organism and organ. If the latter be a subjected province, a tributary state, a daughter country, a colony, or member of a confederation, the striving for independence is always a struggle for existence.

All the Rubbish of Civilisation

This by no means presupposes a state of war. Not only war, but the outwardly peaceful economic development of the world's industries reduces organisms to organs. When the wholesale importation of bad but cheap products of European industries into Polynesia or Central Asia causes decay in the production of native arts and crafts, it is a loss to the life of the whole people; henceforth the race will be placed in the same category with tribes that must gather rubber, prepare palm-oil, or hunt elephants to supply European demand, and who in turn must purchase threadbare fabrics, spirits that contain sulphuric acid, worn-out muskets, and old clothes—in a word, all the rubbish of civilisation.

Their economic organisation dies; and in many cases this is also the beginning of the decline and extinction of a people. The weaker organism has succumbed to the more powerful. Is the case so different—that of Athens, unable to live without the corn, wood, and hemp of the lands on the Northern Mediterranean coast?—or of England, whose inhabitants would starve were it not for the importation of

meat and grain from North America, Eastern Europe, and Australia ?

In vain have men sought for characteristics in the rocks of the earth and in the composition of the air by which one land might be distinguished from another.

The idea of great, lasting, conclusive qualitative variations in different parts of the earth is mythical. Neither the Garden of Eden nor the land of Eldorado belongs to reality. There is no country whose soil bestows wondrous strength upon man or an exuberance of fruitfulness upon woman. In India precious stones are as little apt to grow out of the cliffs as silver and gold are likely to exude from fissures in the earth. Nor is there any basis for the slighter differences between the Old World and the New which the philosophers of history of the eighteenth century believed they had discovered. The opinion that the New World produces smaller plants, less powerful animals, and finally a feebler humanity, was not unconditionally rejected by even Alexander von Humboldt. The degeneration and wasting away of the American Indians would certainly be a less disgraceful phenomenon could it be attributed to some great natural law instead of to the injustice,







Underwood and Underwood

MAN'S WONDERFUL TRIUMPH OVER NATURE
By irrigation the arid desert of California has been made to blossom as the rose in the luxurious orange groves of Riverside. These views show the desert, the method of irrigation, and the result of man's labour.

greed, and vices of the white men. In the course of development of the European daughter-nations in America we cannot recognise any such great and universal distinction. The course of history in America, just as in corresponding periods of time in Northern Asia, in Africa, and in Australia, only confirms the belief that lands, no matter how distant from one another they may be, whenever their climates are similar, are destined to be scenes of analogous historical developments.

How Man is Levelling the Earth

It is certain that, so far, one of the greatest results of the labour of man has been the levelling and overcoming of natural differences. Steppes are made fertile through irrigation and manuring; the contrast between open and forest land becomes less and less—indeed the destruction of forests is being far too rapidly and widely carried out—the acclimatisation of men, animals, and plants causes variations to disappear more and more as time passes. We can look forward to a time when only such extremes as mountains and deserts will remain—everywhere else the actions of the earth will be equalised. The process by which this is carried out may be described shortly. Man, in spite of all racial and national differences, is fundamentally quite as much of a unity as the soil upon which he dwells; through his labour more and more of this character of unity is transmitted to the earth, which, as a result, also becomes more and more uniform.

One of the most powerful of the ties by which history is bound to Nature is that of its dependence on the ground. At the first glance any given historical development is involved with the earth only—the earth upon which the development takes place. But if we search deeper we shall find that the roots of the development extend even to the fundamental principles of the planetary system. By this it is not meant that every history must be founded on a cosmological basis, that it must begin with the creation, or, at least, with the destruction of Troy, as was once thought necessary; but it is certainly safe to say that a philosophy of the history of the human race, worthy of its name, must begin with the heavens and then descend to the earth, filled with the conviction that all existence is fundamentally one—an indivisible conception founded from beginning to end on an identical law.

History from Heaven to Earth

The 316,250,000 square miles of the earth's surface is the first area with which history has to do. Within it all other surface dimensions are included; it is the standard for measurement of all other areas, and also comprehends the absolute limits of all bodily life. This area is fixed and immutable so far as the history of mankind is related to it, although in respect to the history of the world it is not to be looked upon as having been unalterable in the past, or as being likely to remain unchanged in the future.

The earth's surface may be divided into three unlike constituent parts—84,250,000 square miles of land, 220,000,000 square miles of water, and 13,750,000 square miles of ice-covered, and for the greater part unexplored, land and sea in the Northern and Southern Polar regions. The land is the natural home of man, and all his historical movements begin and end upon it. The size of states is computed according to the amount of land which they include; their growth has derived its nourishment from the 84,250,000 square miles of earth as from a widespread fundamental element. The sea is not to be looked upon as an empty space between the divisions of land, merely separating them one from another, for the 220,000,000 square miles of water are also of historical importance, and the area of every ocean and of every portion of an ocean has its historical significance. History has extended itself over the sea, from island to island, from coast to coast, at first crossing narrow bodies of water, later broad oceans; and states whose foundations arose from connections by sea remain dependent on the sea. The Mediterranean held together the different parts of the Roman Empire just as the oceans unite the Colonies of the British Empire.

316,250,000 Miles of History

The variations of the earth's form from that of a perfect oblate spheroid are so small that they may be entirely disregarded from the point of view of history. All portions of the earth's surface may be looked upon as of equal curvature; the pyriform swelling which Columbus believed to be a peculiarity of the tropic zones in the New World was merely an optical illusion. Thus all portions are practically

similar, and uniformity obtains over the entire earth to such an extent that there is room left only for minor inequalities in configuration. To these belong the differences in level between lands and seas, highlands and lowlands, mountains and valleys. Such variations amount to very little when compared with the earth as a whole; for the height of the tallest of the Himalayas added to the earth's radius would increase its length by about $\frac{1}{760}$ only; and the same may be said of the greatest depressions beneath the level of the sea—inequalities that cannot be represented on an ordinary globe. Their great historical significance is due chiefly to the fact that the oceans and seas occupy the depressions, from which the greatest elevations emerge as vast islands.

The remaining irregularities of the earth's surface are not sufficient to produce any permanent variations in the diffusion of races or of states. Their influence is merely negative; they may only hinder or divert the course of man in his wanderings. Even the Himalayas have been crossed—by the Aryans in the west, and by the Tibetans in the east; and British India has extended its boundaries far beyond them to the Pamirs. The historian is concerned with but two of the variable qualities of the land—differences in level and differences in contour. Variations in constitution, development, elementary constituents, and the perpetual phenomena of transformation and dissolution which present a thousand problems to the geographer, scarcely exist for the historian. Nor are those great inequalities, the depressions in which the seas rest, of any interest to him. It is indifferent whether the greatest of such depressions be covered by five miles of water, or, as we now know, by almost six miles. The fact that the Mediterranean reaches its greatest depth in the eastern part of the Ionian Sea has nothing whatever to do with the history of Greece.

Irregular Surface of the Earth

To be sure, there is a general connection between the depth of the Mediterranean, shut up within the Straits of Gibraltar, and the climate of the neighbouring regions, which has a direct influence on the inhabitants of Mediterranean countries; but it is a very distant connection, and it is only mentioned here in order to remind the reader that there is not a single phenomenon in Nature that is not brought home to mankind at last. Still, as a rule, history is concerned with the depths of the sea only in so far as they are the resting-places for submarine telegraph cables; and this is a fact of very recent times. It may be said that the formation of the earth's crust occurred at a period too remote to have had any influence on the history of man, and that therefore all questions concerning it should be left to geology. The first statement may be admitted, but the latter does not follow by any means; for if the whole Mediterranean region from the Caucasus to the Atlas Mountains, and from the Orontes to the Danube, is a region of uniform conformation, it is purely by reason of a uniformity in development. In the same manner there is an extensive region of uniform conformation to the north, between the Atlantic Ocean and the Sudetic Mountains in Austria.

Depths of The Sea

There are great features of the earth's conformation that are so extensive that groups of nations share them in common. Russia and Siberia occupy the same plain upon which the greater portions of Germany, Belgium, and Holland are situated. Germany and France share the central mountain system which extends from the Cévennes to the Sudeten, or Sudetic Mountains. A mere participation in a common geological feature produces such affinity and relationship as may be seen in the Alpine states, in Sweden and Norway, and in the nations of the Andes. This reminds us of the groups of nations that surround seas: but that which separates the Baltic states binds them together; and the mountains that unite the Swiss cantons also separate them from one another. Lesser features of conformation divide countries and often exhibit gaps and breaches in development, for the reason that they divide a political whole into separate natural regions. The history of the lowlands of North Germany differs greatly from that of the mountainous districts of the same country; the lowlands of the Po and Apennine Italy are two different lands. The great contrast between the hilly manufacturing west of England and the low-lying agricultural east extends throughout

Nature Divides and Unites



SCENERY THAT SHAPES CHARACTER: THE INFLUENCE OF THE MOUNTAINS

The stories of mountain peoples are very similar; the Highlanders of Scotland, Wales, Switzerland, the Cevennes, and Tyrol, have many characteristics in common, owing their rugged nature and independence to environment.

English history; and in like manner the highlands and the lowlands are opposed to each other in Scotland.

Wherever mountain formations occur largely in a country, the question arises whether, in spite of all diversity, they unite to form a whole, or whether they exist as separate, independent neighbouring parts. The elements of the surface formation of the earth are not only historically important in themselves as units, but also on account of the way in which they are connected with one another. We have in Greece an example of an exceedingly intricate mountain system in which barren plateaus are interspersed with fertile valleys and bays. Owing to the sea, such bays as those of Attica, Argos, and Lamia are to a high degree self-dependent; they became little worlds in themselves, independent states, which could never have grown into a united whole had they not been subjected to external pressure.

The reverse of this state of disunion, arising from the juxtaposition of a great number of different formations, is the division of North America into the three great regions of the Alleghanies, the Mississippi Valley, and the Rocky Mountain plateau, which gradually merge into one another and are bound into a whole by the vast central valley. Austria-Hungary includes within itself five different mountain features—the Alps, Carpathians, Sudeten, the Adriatic provinces, and the Pannonian plains. Vienna is situated where the Danube, March, and Adria meet, and from this centre radiates all political unifying power. If a still closer-knit unity is co-existent with a diversified geological formation of insular or peninsular nature, as in Ireland or Italy, it follows that this unity binds the orographic divisions into an aggregate. The discrepancies between Apennine Italy, Italy of the Po Valley, and Alpine Italy, which have been evident in all periods of history, formed, in their rise and in their final state of subjugation to political force, an example of dissimilarity of mountain features existing within peninsular unity.

The great continental slopes are also important aids to the overcoming of orographic obstacles to political unity. In Germany there is a general inclination towards the north, crossed and recrossed by a number of mountain chains and successions of valleys. It is not to be denied that the intersecting elevations have furthered political disunion. Without



THE SOFTENING EFFECT OF THE RICH AND FRUITFUL LOWLANDS
Whereas mountains breed independence and rugged character in their inhabitants, the more fruitful lowlands develop a gentler race, loving the companionship of communities. The lowlands, also, are the homes of mixed races.

doubt, a gradual slope from the southern part of Germany to the sea, with a consequent partition of the country by the rivers into strips extending from east to west, would have been attended by a greater political unity. Again, but in another way, the preponderance of any one orographic element has a unifying effect on all the other elements, as we have seen in North America, where the simple, even course of development has been in conformity with the existence of geological formations on a large scale.

There are internal differences in formation in every mountain range and in every plain, all of which have different influences on history. The steep fall of the Alps on the Italian side has rendered a descent into the plains of the Po far easier than a crossing in the opposite direction, where many obstacles in the shape of mountain steeps, elevated plateaus, and deep river valleys surround the outer border of the Alps. Again, penetration from the plains to the interior of the Alps is less difficult in the west, where there are no southern environing mountains, than in the east, where there is such a surrounding mountain chain. The compact formation of the Alps in the west crowds obstacles together into a small space, where they may be overcome with greater labour and in a shorter time than in the east, among the broadened-out chains of mountains, where there are numerous smaller hindrances to progression spread out over a wider territory. The route from Vienna to Trieste is twice as long as that from Constance to Como.

In mountain passes orographic differences are concentrated within very limited areas, and for this reason passes are of great importance in history. The value of gorges and defiles increases with their rarity, and their number varies greatly in different mountain chains. The Pindus range is broken but once, by the cleft of Castoreia, and an easy passage from Northern to Central Greece is possible only by way of Thermopylæ; the short overland route from Persia to India is through the Khyber or Bolan Passes. The Rhætian Alps are rich in defiles and gorges; but the mountain ridges are poor in crossing-places, and, as a rule, the elevation of the passes decreases towards the east.

The possibility of journeying over the Himalayas increases as we travel westward. During the Seven Years War the great difference between the accessible, sloping Erz-Gebirge of the Bohemian frontier and the precipitous, fissured, sandstone hills of the Elbe was very apparent. Mountain passes are always

closely connected with valleys and rivers; the latter form the ways leading to and from the former. The valleys of the Reuss and the Tessin are the natural routes to the pass of St. Gothard; and were it not for the gorges of the Inn and the Etsch in the northern and the southern Alps, the Brenner Pass would not possess anything like its present supreme importance. Wherever such entrances to passes meet together or cross one another, important rallying-points either for carrying on traffic or for warlike undertakings are formed; such places are Valais, Valteline, and the upper valley of the Mur. Coire is a meeting-point of not less than five passes—the Julier, Septimer, Splügen, St. Bernardin, and Lukmanier. The value of passes varies according to whether they cross a mountain range completely from side to side, or extend through only a part of it. When the Augsburgers, on the way to Venice, had got through the Fern Pass, or that of Leefeld, the Brenner still remained to be crossed; but when the Romans had surmounted the difficulties of Mont Genevre, the ridges of the Alps were no longer before them; they were in Gaul.

Nature's Place in History

There are also passes through cross ridges that connect mountain chains, such as the Arlberg, that pierces a ridge extending between the northern and the central Alps. Passes of this sort are of great importance to life in the mountains, for, as a rule, they lead from one longitudinal valley to another, such valleys extending between ridges being the most fertile and protected districts in mountainous regions. In this manner the Furka Pass connects Valais, the most prosperous country of the Alps during the time of the Romans, with the upper Rhine valley; and the Arlberg connects the Vorarlberg with the upper valley of the Inn.

Mountain passes are not only highways for traffic, they are the arteries of the mountains themselves. Commerce along the mountain ways leads to settlements and to agriculture at heights where they would hardly have developed had it not been for the roads; and the highest permanent dwellings are situated in and about passes. The Romans established their military colonies in the neighbourhood of passes, and the German emperors rendered the Rhætian gorges secure through settlements. There are political territories that are practically founded on mountain passes. The kingdom of Cottius, tributary to the Romans, was the land of the defiles of the Cottian Alps; Uri may be designated as the country of the north Gothard, and the Brenner Pass connects the food-producing districts of the Tyrol with one another.

Value of Mountain Passes

The transition point from one geological formation to another is invariably the boundary line between two districts that have different histories. The movements in one region bring forces to bear on the movements in the other. Hence the remarkable phenomena which occur on mountain borderlands. The historical effects of mountainous regions are opposed by forces that thrust themselves in from without; external powers anchor themselves, as it were, in the mountains, seeking to obtain there both protection and frontier lines. Rome encroached more and more upon the Alps, first from the south, and then from the west and the north, by extending her provinces. Austria, Italy, Germany, and France have drawn up to the Alps on different sides; they merely fall back upon the mountains, however; their centres lie beyond. The same phenomenon is shown in the regions occupied by different races. Rhætians, Celts, Romans, Germans, and Slavs have penetrated into the Alps; but the bulk of their populations have never inhabited the mountainous districts. The question as to which nation shall possess a mountain chain or pass is always decided on the borders. Here are the battlefields; here, too, are the great centres of traffic whose locations put one in mind of harbours situated at points where two kinds of media of transmission come into contact with each other. This margin, like that of the sea, also has its promontories and bays.

Battlefields of Mountain Borderlands

Height of land obstructs historical movements and lengthens their course. The Romans remained at the foot of the Alps for two centuries before they made their way into them, forced to it by the constant invasion of Alpine robbers who descended from the heights as if sallying forth from secure fortresses. Long before this the Romans had encircled the western side of the Alps and had begun to turn the eastern side. The colonies on the Atlantic coast of America, the predecessors of the



THE BANDIT'S WIFE

The effect of life in the hills is clearly seen in this picture by Leopold Robert, who painted it after living among the "Brigands of the Mountains" and studying their wild and picturesque life. The association of peoples with mountains develops a rugged character and gives that strength and independence which mountain races have displayed in history.

United States, had been in existence for almost two hundred years before they passed the Alleghanies; and it is certain that this damming up of the powerful movement towards the west, which arose later, had a furthering influence on the economic and political development of the young states. The passes of the Pyrenees occur at about two-thirds of the distance from the level ground to the summits of the mountains; in the Alps the elevation of the gorges is but one-half or one-third that of the mountain tops; hence, as a whole, the Alps are more easy of access than the Pyrenees. The Colorado plateau is a greater obstacle than the Sierra Nevada range in California, which, although of

much greater elevation, slopes gently and is interspersed with broad valleys. It was due rather to the forests than to the moderate elevation of the central mountains of Germany that their settlement was delayed until the twelfth and thirteenth centuries. The influence of the broad, desert tableland of the great basin in separating the western from the Mississippi states is greater than that of the Rocky Mountains with peaks more than twelve thousand feet in height. The extensive glacial formations and the sterility of the mountains in Scandinavia have held Sweden and Norway asunder, and at the same time have permitted the Lapps and their herds of reindeer to force themselves in between like a wedge. The broad, elevated steppes of Central Tienschan enabled the Kirghese to cross the mountains with their herds and to spread abroad in all directions.

In such cases the natives of tablelands and mountainous regions, who inhabit little worlds of their own on the heights, themselves contribute not a little towards rendering it difficult to pass through their countries. The most striking example of this is Central Asia with its nomadic races, whose influence in separating the great coast-nations of the east, west, and south from one another has been far more potent than that of the land itself. And these nomads are a direct product of the climate and the soil of this greatest plateau in the world. The dry tablelands of North America, from the Sierra Madre in Mexico to Atacama in the south, were in early times inhabited by closely related races, having more or less similar institutions and customs. A like effect of life on plateaus, shown in the Caucasus Mountains, that have preserved their character as a barrier against both Romans and Persians, and have been crossed by the Russians only in recent times, points to a further reason for the sundering influence of the wall-like position of mountains between the steppes and the sea. Phenomena similar to those observed in Central Asia and in North America occur on a smaller scale in every mountainous country — extensive uninhabited tablelands in which man and free nature come into direct contact with each other. Independent development is thus assured to the dwellers on mountains, and to their states a preponderance of territory over population. The political importance of Switzerland is not owing to its three millions of inhabitants, but to the impossibility of occupying one-fourth of the Alps. The position—almost that of a Great Power—held by Switzerland during the fifteenth and sixteenth centuries was due to the union of this element of strength (and the fact that Switzerland, by reason of its situation, includes many of the most important commercial routes in Europe) with the mountain-bred spirit of liberty and independence of its people. In other respects, too, mountain states stand pre-eminent among nations—as Tyrol outshone all other Austrian provinces in 1809, so the mountain tribes of the Caucasus were the only Asiatics able to offer any permanent resistance to the advance of the Russians. The broad, rough character of a highland country is an active force; in all mountain wars it has led to the spreading out of armies and to the lengthening of columns.

Little Worlds on the Heights

Man in Touch with Nature

The support afforded by mountains to weak nations that without the protection of a great uninhabited region would not have been able to maintain their independence can be likened only to the protection which, as we have seen, is given by the sea. Switzerland has often been compared to the Low Countries; and there is even a still greater resemblance between city cantons such as Basle and Geneva and ports like Hamburg and Lübeck. It was owing to similar reasons that the strongholds of French Protestantism during the sixteenth century were the Cévennes, Berne, and La Rochelle. The protection given by mountains must not be looked upon as of an entirely passive nature, for the rugged nature of mountaineers, and their concentration within small areas where a development is possible, rendering them conscious of independence and assisting them to preserve it, are also a result of life in the highlands. In low-lying countries difference in levels cannot exceed a thousand feet; and, as the variations in conformation are correspondingly small, the lowlands offer fewer hindrances to historical movements than do rivers, seas, and marshes—thus there is a greater opportunity for the development of such movements upon the plains. Consequently there is a rapid diffusion of races over extensive regions whose

Mountains the Friends of Weak Nations

boundaries are determined by area rather than by conformation.

Lowlands hasten historical movements. There is no trace of the retarding and protecting effects of the highlands in lands where, as Labu said of Saxony, a nation dwells together with its enemies on the same boundless level. Nomadism is the form of civilisation characteristic of broad plains and extensive tablelands. But the Germanic races of history, a great part of which were no longer nomads, exhibited a hastening in their movement towards the west when they reached the lowlands; for they appeared on the lower Rhine at an earlier time than on the upper Rhine, delayed in their wanderings towards the latter by the mountainous, broken routes. Long after the Celts had disappeared from the lowlands, when their memory only was preserved in the names of hills and rivers, they still continued to exist in the protected mountain regions of Bohemia. In like manner, in later times, the Slavs maintained themselves in natural strongholds after they had vanished from the plains of Northern Germany. Compare the conquest of Siberia, accomplished in a century, with the endless struggles in the Caucasus. And what lowland country can show remnants of people equivalent to those of the Caucasus?

Effect of Mountains on People

The lowlands are also regions of the most extensive mingling of races. We have but to think of Siberia or the Sudan. In the development of states, lowlands take precedence over mountainous district. Rome expanded from the sea-coast to the Apennines, and from the valley of the Po to the Alps; the conquest of Iberia began in the one great plain of the peninsula, in Andalusia, and in the lowlands of the Ebro; and foreign control of Britain ended at the mountains of Scotland and Wales. In North America colonisation spread out in broad belts at the foot of the Alleghanies before it penetrated into the mountains. In Southern China the mountains with their unsubdued tribes are like political islands in the midst of the Mongolised hills and plains.

The Natural Strongholds of Nomad Races

The lesser the differences in level, and the smaller the conformations of the earth, the more important are those differences that remain within heights of less than a thousand feet above the sea. Elevations of a dozen yards were of the greatest importance on the battlefields of Leipzig, Waterloo, and Metz. The significance of the little rise in the land of Gavre, near Ghent, lies in the fact that even at times of flood a foundation for a bridge will remain firm upon it. The slightest elevation in the lowland cities of Germany and Russia offers such a contrast in altitude to its surroundings that a fortress, a cathedral, or a kremlin is erected upon it. The two ridges that extend through the plains of North Germany are not only very prominent in the landscape, but also in history. Owing to their thick forests, their lakes and marshes, and small populations, they are peculiarly like barriers; and the breaches in them are of importance to the geography both of war and of commerce. The battles fought against Sweden and Poland, round about the points where the Oder and the Vistula cross these regions, are to be counted among the most decisive struggles in the history of Prussia.

Wherever there are no differences in level, a substitute is sought in water. In such cases wide rivers or numerous lakes and marshes form the most effective obstacles, boundaries, and strongholds. Finally the plains approach the sea and are submerged by it; and here lowland countries find a support safer than that of the mountains, and richer in political results. North Germany is supported by the sea; South Germany by mountains. Which boundary is the more definite, the more capable of development, politically and economically? Political superiority is ever connected with the protection and support of the sea.

Nature at Waterloo

The influences of vegetation upon historical movements are often more important than those of the earth-formation itself. Wherever extensive lowland regions are overgrown with grass, we always find mobile nomadic races that, with their large herds and warlike organisations, are great causes of disturbance in the development of neighbouring lands. Since the form of vegetable growth which covers grass steppes and prairies is dependent on climate, it follows that nomadism is prevalent throughout the entire northern sub-temperate zone, where such grass is abundant—from the western border of Sahara to Gobi. Nomadic races of historical significance



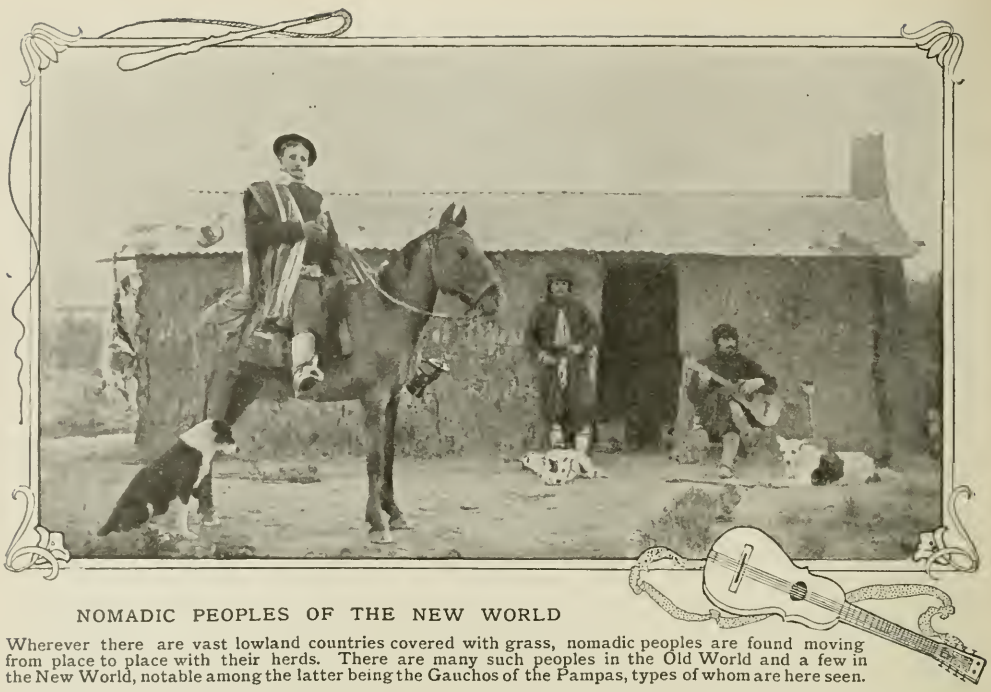
THE GREATEST PLATEAU IN THE WORLD: ITS PEOPLE, AND ITS INFLUENCE IN HISTORY

This is a typical scene of life in Central Asia, the greatest plateau in the world, whose people, the direct product of the climate and the soil, inhabiting little worlds of their own on the heights, have exercised an enormous influence in separating the great coast nations of the east, west, and south from one another.



A MOUNTAIN PASS: A NATURAL FACTOR OF VAST IMPORTANCE IN HISTORY

Mountain passes have been of great importance in history. The Romans established their military colonies in the neighbourhood of passes, and there are political territories practically founded on mountain passes. This is a picture of an entrance to the famous Bolan Pass, through which, and through the Khyber Pass, lie the shortest overland routes from Persia to India.



NOMADIC PEOPLES OF THE NEW WORLD

Wherever there are vast lowland countries covered with grass, nomadic peoples are found moving from place to place with their herds. There are many such peoples in the Old World and a few in the New World, notable among the latter being the Gauchos of the Pampas, types of whom are here seen.

are even to be seen in the New World—for example, the Gauchos of the Pampas, and the Llaneros of Venezuela.

In comparison with plains and prairies, forests are decided hindrances to historical movements. Peoples are separated from one another by strips of woodland; the state and the civilisation of the Incas ceased at the fringe of primeval forest of the east Andes. Thickly-wooded mountains present the most pronounced difficulties to historical movements. The appearance of the oldest large states and centres of culture on the borders of steppes, in the naturally thinly-wooded districts at the mouths of rivers, and on diluvial plains, seems natural enough to us when we think of the difficulties presented by life in a forest glade to men who had only stone implements and fire at their command.

A description of the difficulties encountered during Stanley's one hundred and fifty-seven days' journey through the primeval woods of Central Africa gives us a very clear conception of what are termed "hindrances" to historical movements. The early history of Sweden has been characterised as a struggle with the forest; and this description is valid for every forest country. The forest divides nations from each other; it allows only small tribes to unite, and creates but small states, or, at the most, loosely bound confederations. It is only where a great river system forms natural roads, as in the regions of the Amazon and the Congo, that great forest districts may be rapidly united to form a state. In other cases settlements in forest clearings and road-breaking precede political control.

In this way the Chinese conquered the races of the western half of Formosa in two hundred years; in the eastern half the land is still under forest and the natives have also retained their independence. The existence of small states, with their many obstacles to political and economic growth, still continues in forest regions alone; and the roaming hordes of hunters inhabiting them belong to the simplest forms of human societies.



Professor FREDERICK RATZEL

LAND AND WATER AND THE GREATNESS OF PEOPLES

SINCE man is a creature capable only of life on land, bodies of water must at one time have been the greatest obstacles to his diffusion. Thus the original family of human beings could have inhabited only one portion of the earth, to which it was restricted by impassable barriers of water. We know that in early geological times the division of the earth's surface into land and water was subject to the same general laws as to-day; therefore such a portion of the earth could not have been more than a part of the total land in existence—a larger or smaller world-island.

The first step beyond the bounds of this island was the first step towards the conquest of the whole earth by man. The first raft was therefore the most important contrivance that man could have invented. It not only signified the beginning of the acquisition of all parts of the earth to their very farthest limits, but also—and this is far more important—the potentiality for all possibilities of divergence and temporary separation offered by our planet. It brought with it escape from the development that always turns back upon itself, travelling in a circle, and the progress that constantly consumes itself—factors inseparable from life confined within a small area; it led to the creation of fruitful contrasts and differences, and to wholesome competition—in short, to the beginning of the evolution of races and peoples. Looked at from this point of view, even the discovery of Prometheus has been of less moment to the progress of mankind than that of the inventor who first joined logs together into a raft and set out on a voyage of discovery to the nearest islet.

Early Man's Greatest Invention

From the time of this first step onward, the development of the human race was so intimately connected with the uninhabitable water that one of its most powerful incentives lay in the struggle with the sea. And so little have we advanced from this condition that the stoutest race of the present day is one that from a narrow island commands the ocean. England's strength is a proof of the tremendous importance of the sea as a factor of political power and of civilisation. But not to exaggerate the significance of the ocean, we may at the same time remember that it consists in the fact that, by means of the sea, open highways are presented from land to land. Command of the sea is a source of greatness to nations, for it facilitates dominion over the land.

Why the Sea is Important

By reason of its consistency the water is an important agent of levelling and equalising effects. As we perceive this in Nature, so do we also in history. A race familiar with the sea in one place is familiar with it in all regions. The Normans off the coast of Finland, and the Spaniards in the Pacific, found the same green, surging element, moved by the same tides, subject to the same laws. The ocean has an equalising effect upon the coasts even; the dunes of Agadir and of the harbour at Vera Cruz awaken memories of home in the mind of the sailor from Hela. The diffusion of the sea over three-quarters of the earth's surface must also be taken into account. Thus the influence of the ocean in rendering men familiar with different parts of the world is far greater than that of the land. From the ocean comes a constant unifying influence which ever tends to reduce the disuniting effect of the separation of land from land. As yet no attempt to extend boundaries beyond the land out over the sea has been followed by lasting success.

No nation can or ever will possess the sea. Carthage and Tarentum wished to forbid Italian vessels the passage of the Lacinian capes by treaty; the Venetians desired dominion over the Adriatic to be granted them by the Pope; Denmark and Sweden strove for a dominion over the Baltic Sea; but all this is against the very nature of the sea; it is one and indivisible. Only near by the coast, within

No Nation can Possess the Sea

the three-mile limit of international law, and in landlocked bays, may it be ruled as land is ruled. The claims of the Americans concerning the sovereignty of Behring Sea have never been recognised, and England can retain dominion over the Irish Sea only by means of her naval power. The ocean has a unifying influence on the land, even when this influence consists only in the same ends to be attained being placed before different nations. During a time of the greatest disunion, German cities that lay far enough from one another were united by Baltic interests. The union of scattered land-forces prepared the way for the opening up of wider horizons to England in the sixteenth century in the same manner as for Italy and Germany in the nineteenth.

The Sea's Unifying Influence

gain from piracy that lures men forth, many a ship has returned to port bearing with it inestimable benefits to mankind; for the greatest maritime discoveries have not been mere explorations of new seas, but of new lands and peoples. Such discoveries as these have contributed most to the broadening of the historical horizon. Even political questions expand, assume a larger character, and often become less acute, when they emerge from the narrow limits of continental constraint upon the free and open coasts. This is true even of the Eastern Question, to the solution of which definite steps were taken upon the Mediterranean when it seemed to have come to a deadlock in the Balkan peninsula.

The ocean is no passive element to maritime races. By deriving power from

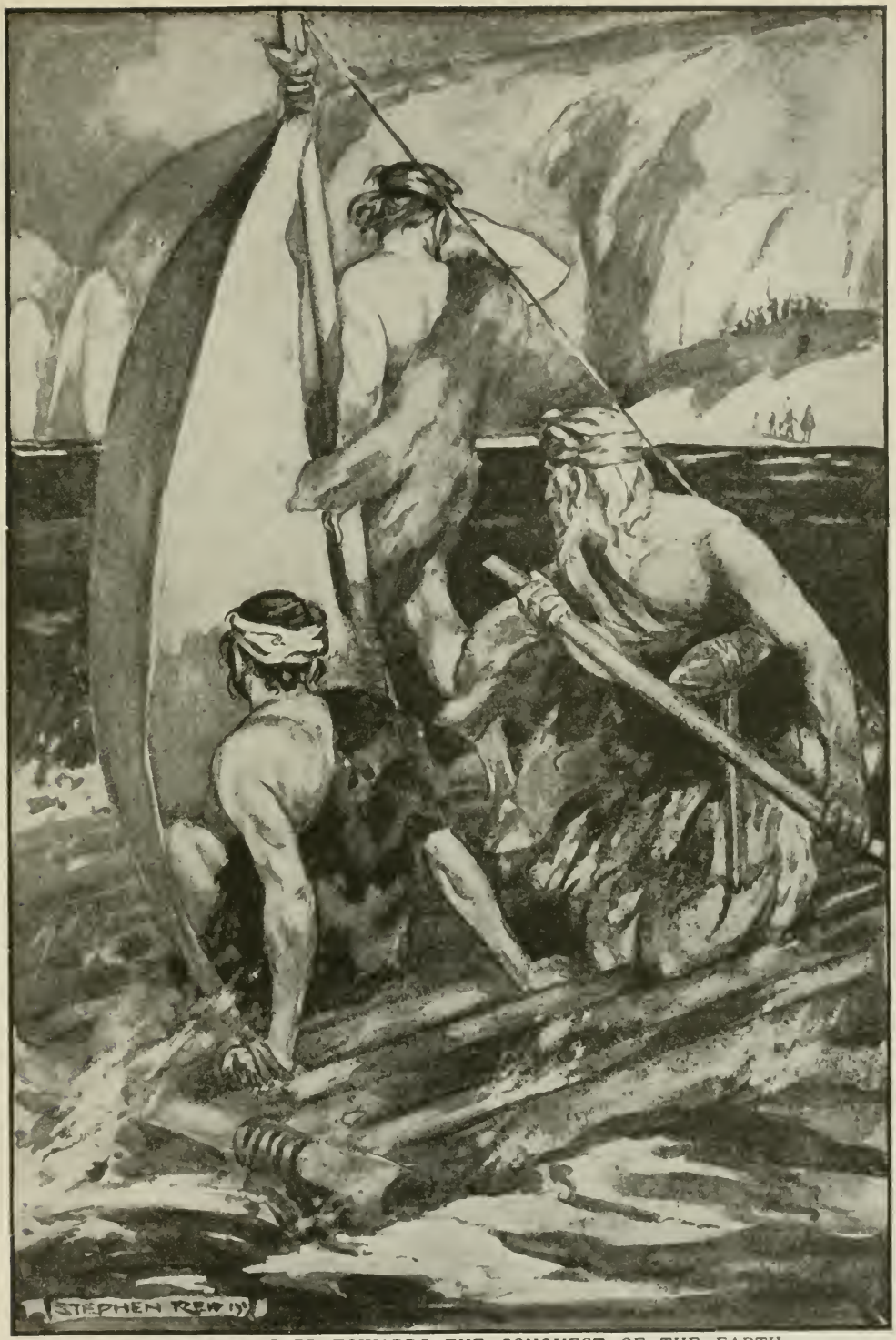


THE LITTLE ISLAND THAT RULES THE SEA

The command of the sea is the source of national greatness, as it facilitates dominion over land. England from a narrow island dominates the sea. The tiny part of white in the Eastern Hemisphere on this page shows how relatively insignificant Great Britain is to the vast world of waters where her shipping is supreme

Sea power is far more closely connected with traffic than is land power; in fact, the foundation of sea power is trade and commerce. It is, however, more than mere commercial power and monopoly of trade. In spite of all egoism, greed, and violence there remains one great characteristic peculiar to maritime Powers, spared even by Punic faith and Venetian covetousness. Even the neighbourhood of the ocean is characterised by its vast natural features; rivers broaden as they approach the sea, great bays lie within the coasts, and, though the latter may be flat, the horizon lines of their low dune landscapes are broad. The horizons of maritime races are also broad. Whether it be the hope of profit from commerce or of the sea they become subject to the sea. The more strength they draw from the ocean, the less firm becomes their footing upon the land. Finally, their power no longer remains rooted in the land, but grows to resemble that of a fleet resting upon the waves; it may with but small expenditure of effort extend its influence over an enormously wide area, but it may also be swept away by the first storm. As yet all maritime nations have been short-lived; their rise has been swift, often surprisingly so; but they have never remained long at the zenith of prosperity, and, as a rule, their decay has been as rapid as their elevation to power. The cause of the fall of all maritime nations

Short-lived Nations of the Sea



MAN'S FIRST STEP TOWARDS THE CONQUEST OF THE EARTH

The most momentous event in the early history of man was the launching of the first raft. That moment was instinct with all the mighty conquests and discoveries yet to be accomplished over seas; and even the discovery of fire, says Professor Ratzel, has been of less moment to the progress of mankind than that of the inventor who first joined logs together into a raft and set out on a voyage of discovery to the nearest islet

has been the smallness of their basis, their foreign possessions, widely separated from one another and difficult to defend, and their dependence upon these foreign possessions. In many cases the over-balancing of political by economic interests, the neglect of materials for defence, and effeminacy resulting from commercial prosperity, have also contributed to their destruction. Special combinations of characteristics arising from the geographical positions of oceans, continents, and islands are connected with the broad features common to oceanic continuity. These characteristics are reflected from the sea back to the land, and there give rise to historical groups. The historical significance of such groups is expressed in their names even—Mediterranean World, Baltic Nations, Atlantic Powers, and Pacific Sphere of Civilisation. They are primarily the results of commerce and exchange, and of the furthering, correlating influences of all coasts and islands. When they united all peninsulas, islands, and coasts of the Mediterranean into one state the Romans merely set a political crown upon the civilised community that had developed round about, and by means of, this sea.

The Fall of Maritime Nations

And if we wish rightly to estimate the significance of Roman expansion from a Central European point of view, we may express our conception very shortly—the diffusion of Mediterranean culture over Western and Central Europe. It was at the same time a widening of the horizon of a landlocked sea to that of the open ocean. The Atlantic Ocean succeeded to the Mediterranean Sea. The Americans and the Russians, and the Japanese, repeating their words, maintain that in the same manner the Pacific must succeed to the Atlantic; but they forget the peculiar features of the Mediterranean, especially its conditions of area. It is no more probable that such a compact, isolated development will occur again than that the history of Athens will repeat itself on the Korean peninsula or at Shantung. The greater the ocean, the farther is it removed from the isolated sea. It was not the Atlantic that succeeded to the Mediterranean, but the broad world-ocean that succeeded to the narrow basin called the Mediterranean Sea. There have always been differences between the various divisions of the main sea; and these variations will ever continue to be prominent, although constantly tending to become less and less so.

Uniqueness of the Mediterranean

The Pacific will always remain by far the greatest ocean, including, as it does, forty-five per cent. of the total area of water. Owing to its great breadth, the Pacific routes are from three to four times as long as those of the Atlantic. The Pacific widens toward the south; and Australia and Oceania lie in the opening, thus furnishing the Pacific with its most striking peculiarity—a third continent situated in the Southern Hemisphere, together with the richest series of island formations on earth. Whatever the Pacific may contribute to history, it will be a contribution to the annals of the Southern Hemisphere; and if a great independent history develop in the antipodes, it will have the Southern Pacific, bounded by Australia, South America, New Zealand, and Oceania, for its sphere of action. The area of the Atlantic Ocean is but half that of the Pacific. Nor is it for this reason alone that in comparison with the latter it is an inland rather than a world sea; for, owing to its narrowness between the Old and the New Worlds, the branches it puts forth, and the islands and peninsulas that it touches, it shortens the routes from one coast to the other. In it there is more of a merging of land and sea than a separation; and to-day it is chiefly a European-American ocean. The Indian Ocean is both geographically and historically but half an ocean. Even though important parts of it may be situated north of the equator, it is too much enclosed to the north; it widens to the south, and thus belongs to the Southern Hemisphere.

The vast Potentialities of the Pacific

The great oceans open up broad areas for historical movements, and through their instrumentality peoples are enabled to spread from coast to coast in all directions; the inland seas, on the contrary, cause the political life of the nations bordering upon them to be concentrated within a limited area. The Mediterranean will ever remain a focus towards which the interests of almost all European Powers concentrate. It has, moreover, become one of the world's highways since the completion of the Suez Canal. The Baltic somewhat resembles the Mediterranean, but it would be saying too much to look



A STORM SUCH AS MAY SWEEP AWAY A NATION'S POWER

All maritime nations, says Professor Ratzel, have been short-lived. The more strength they draw from the ocean the less firm becomes their footing upon the land, and their power grows to resemble that of a fleet resting upon the waves; it may extend its influence over an enormous area, but it may also be swept away by a single storm.

upon its position as other than subordinate to that of the greater sea. The area of the Baltic is but one-seventh that of the Mediterranean; and it is lacking in the unique intercontinental situation of the latter. In many respects it resembles the Black Sea rather than the Mediterranean, especially by reason of its eastern relations.

The Coast the Threshold of the Land

Originally the coast was the threshold of the sea; but as soon as maritime races developed it became the threshold of the land. In addition it is a margin, a fringe in which the peculiarities of sea and land are combined; and for this very reason sea-coasts have a historical value greatly disproportionate to their area, especially as they constitute the best of all boundaries for the nations that possess them. Here harbours are situated, fortresses, and the most densely populated of cities. Owing to their close connection with the sea, the inhabitants of coasts acquire characteristics which distinguish them from all other peoples. Even if of the same nationality as their inland neighbours—as, for example, the Greeks of Thrace and of Asia Minor and the Malays of many of the East Indian islands—their foreign traffic nevertheless impresses certain traits and features upon them which in the case of the Low Countries led almost to political disruption.

A coast is more favoured than an interior in all things relating to commerce and traffic; yet neither may enjoy permanent life alone without the other. The French departments of the Weser and of the Elbe were among the most ephemeral of the political results achieved by the short-lived Napoleonic era. With the sea at their backs it is easy for the inhabitants of a coast to become detached from their nation, and but a simple matter for them to spread over other coasts. Ever since the time of the Phœnicians there have been numerous colonists of coasts and

Living and Dead Coasts

founders of coast states. The Normans are most typical in European history. The expansion of coast colonies towards the interior is one of the most striking features of recent African development. Thus coasts are to be looked at from within as well as from without. To many races—such as Hottentots and Australians—the coast is dead compared with the interior; for Germany the coast has been politically dead for centuries. A river-mouth is best suited to carrying the influences of the coast inland.

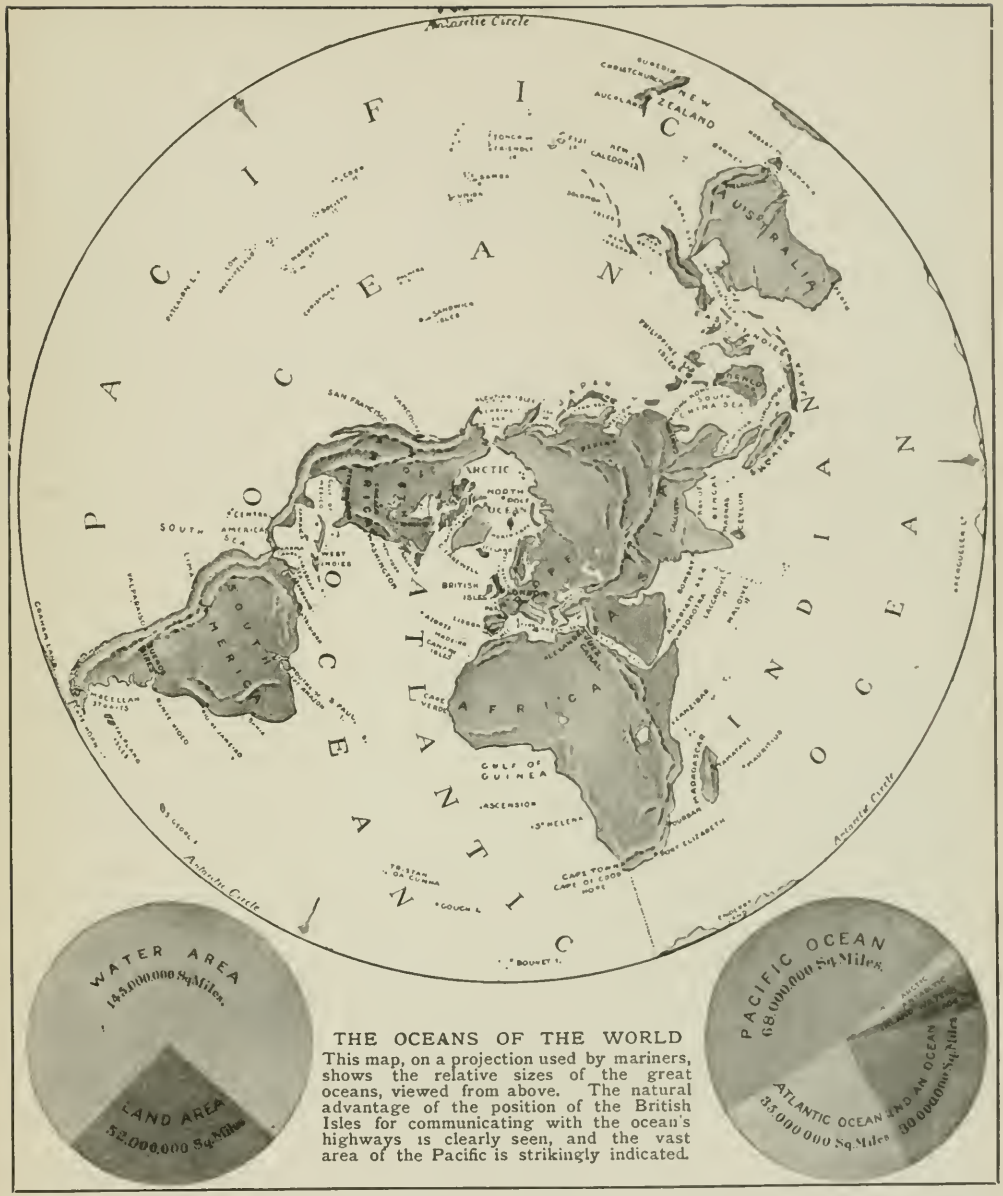
All ancient historians supposed that the Mediterranean Sea, with its many bays, peninsulas, and islands, schooled the Phœnicians in seamanship. This, however, is not so. Nautical skill is transmitted from one people to another, as may be seen from some of the most obvious cases in modern history. No maritime people has become great through its own coast alone. It is not the coast of Maine, with its numerous inlets and bays, that has produced the best seamen, but the coast of Massachusetts, naturally unfavourable for the most part; and it has produced the best seamen for the reason that the inland districts bounded by it are far more productive and furthering to commerce than are the interior regions of Maine.

Nature has forced races to take to the sea only in such countries as Norway and Greece, where the strips of coast are narrow and the inland territory poor. In order to have political influence it is sufficient to have one foot on the sea-coast. Aigues-Mortes, with its swampy

The Place of the Coast in History

environment, was sufficient to extend France to the Mediterranean during the reign of St. Louis; Fiume sufficed for Hungary. Forbidding desert coasts have had a peculiarly retarding effect on historical development. It was necessary to rediscover the Australian mainland, to touch at more favourable points, one hundred and thirty years after the time of Tasman; thus the history of the settlement of Australia by Europeans originated, not with him, but with Cook.

As portions of the general water area, rivers are branches or runners of the sea, extending into the land—lymphatic vessels, as it were, bearing nourishment to the ocean from the higher regions of the earth. Therefore they form the natural routes followed by historical movements from the sea inland and vice versa. A solid foundation of truth underlies those rivers of legendary geography that joined one sea with another. The connection of the Baltic and the Black Sea via Kieff is not that described by Adam of Bremen; but Russian canals have established a waterway, following out the plan indicated by Nature, just as the Varangians also realised it in a ruder way by dragging their boats from the Dwina to the Dnieper. By uniting the Great Lakes to the Mississippi



THE OCEANS OF THE WORLD

This map, on a projection used by mariners, shows the relative sizes of the great oceans, viewed from above. The natural advantage of the position of the British Isles for communicating with the ocean's highways is clearly seen, and the vast area of the Pacific is strikingly indicated.

by means of the Illinois River, the French provided a waterway from the North Atlantic Ocean to the Gulf of Mexico, a line of power in the rear of the Atlantic colonies. The latter fell back on salt water, the former on fresh. The Nile, flowing parallel to the Red Sea from Tanasee in the Abyssinian highlands, shares with the Red Sea even to-day in the traffic between Eastern and East-central Africa. The railway from Mombasa to Uganda completes a western Mediterranean-Indian line of connection, as a road along the Euphrates to the Persian Gulf would an eastern, each following the direction of rivers running parallel to the Red Sea. We can clearly see the transition of the functions of oceans to fresh, shallow water, to sounds and lagoons, in which sea traffic is furnished with smoother, quieter routes under the shelter of the coasts.

In truth, only portions of the lines of traffic follow rivers; for rivers flow from highland to lowland, watersheds breaking their course here and there. In comparison with the oceans, rivers are but shallow

channels, the continuity of which may be broken by every rocky ledge. Thus different regions for traffic arise at various points in the same stream. Only that part of Egypt which is situated north of the first cataract is Egypt proper; the territory to the south was conquered from Nubia. The farther we travel up a stream the less water and the more rapids and falls we shall find; therefore traffic also decreases in the direction toward the river's source. It may be seen from this that there is but little probability of truth in the analogy drawn between the flowing of rivers from elevations to plains and the migrations of nations and directions in which states expand. History shows that migration and development follow a direction contrary from that in which rivers flow.

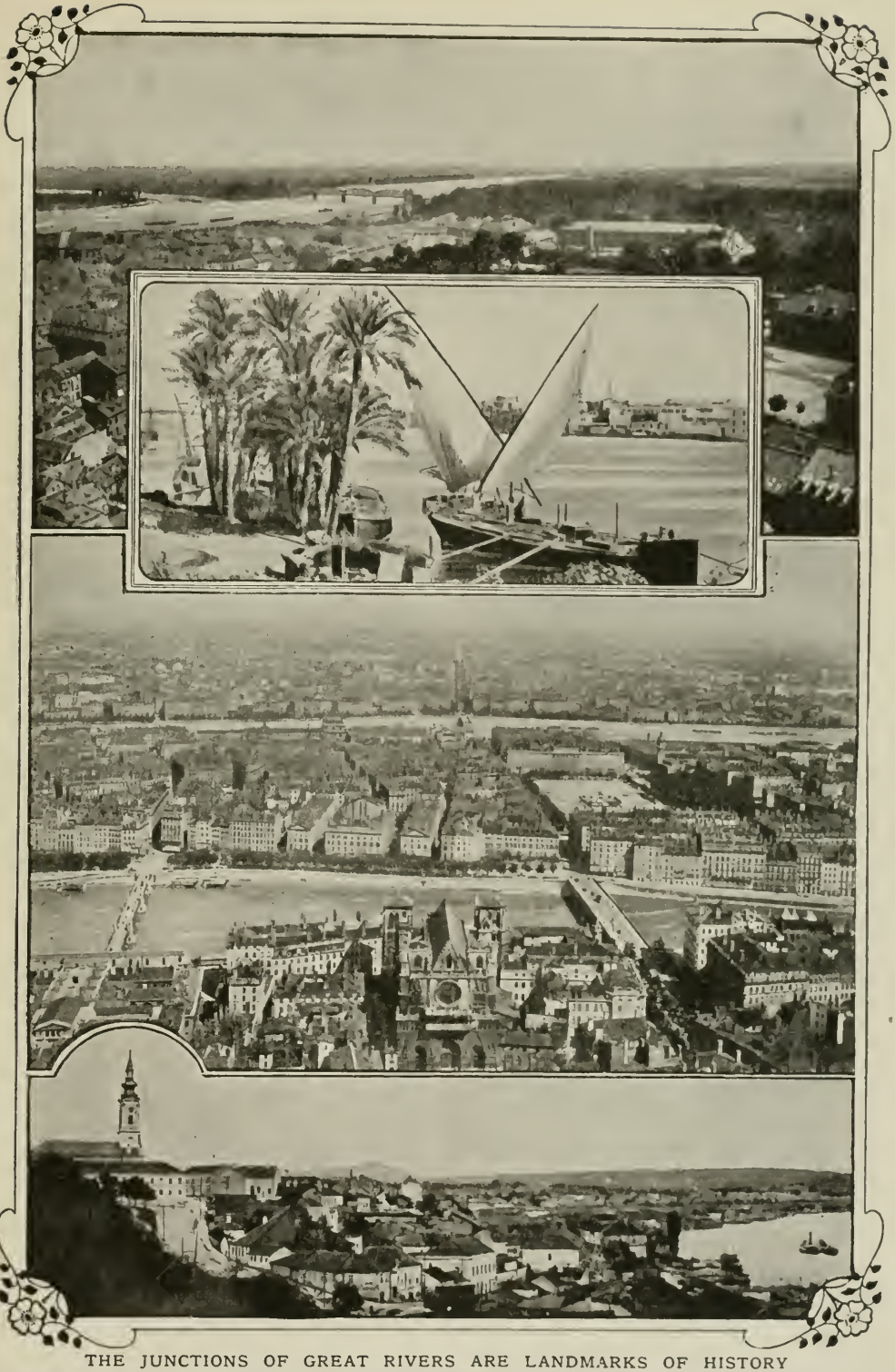
Maritime and terrestrial advantages are concentrated where a river joins the sea; especially characteristic of such districts are deltas, at an early date rendered more efficient for purposes of commerce through canals and dredging. The fertility of the alluvial soil, the lack of forest occasioned by frequent floods, and the protection afforded by the islands of the delta, may have had not a little influence on the choice of such regions as settlements for man. At all events, estuaries and deltas, both small and great, were in the earliest times centres of civilisation. Egypt and Babylonia both testify to this; the colonising Greeks also showed a preference for river mouths. Miletus, Ephesus and Rome were states situated at the mouths of rivers, and so were the ancient settlements on the Rhone, the Guadalquivir, and the Indus. It would not be possible, however, to deduce from this proofs of a potamic phase of civilisation and formation of nations preceding the Thalassic, or Mediterranean. Estuary and delta states are far more a result of the Mediterranean culture. The latter led to the settlement of favourable districts on various coasts, all of which were finally swallowed up into the Roman Empire during the period of its northern and eastern expansion.



THE ORIGIN OF SEAFARING PEOPLES

It is not sufficient to have a favourable sea-coast in order to breed a race of sea-going people. The land behind the coast-line must be fertile and productive, else no inducement exists for seafaring. This condition is everywhere present along the British shores, of which this is a typical coasting scene.

Another much more evident process of development through the instrumentality of rivers was shown at the time when traffic began to extend itself over wide areas. Rivers are the natural highways in countries which abound in water, and are of so much the greater importance because in such lands other thoroughfares are frequently wanting. Taken collectively, rivers form a natural circulatory system. In America at the time of the exploration and conquest, in Siberia, in Africa to-day, they are natural arteries by means of which exchange and political power may be extended. The more accessible a river is to commerce, the more rapidly political occupation increases about its basin, as has been shown by the



THE JUNCTIONS OF GREAT RIVERS ARE LANDMARKS OF HISTORY

Where two rivers join, two lines of political tendencies always meet, and their junction is the point whence political forces must be controlled. This is the significance of the situations of Mainz (1 at top), Khartoum (2), Lyons (3), and Belgrade (4)

Photos · Frith and Photochrome

Varangians in Russia and the Portuguese in Brazil. The best example of a country having developed through conformity with a natural river system and in connection with it is that of the Congo State, with part of its boundaries drawn simply along the lines of watersheds. Mastery among rival colonies is determined by the results of the struggle for the possession of rivers; this has been as clearly shown by the St. Lawrence and the Mississippi in America, as by the Niger and the Benuwe in Africa. The influence of riverways in furthering the path of political development may be best seen in the contrast between South America and Africa; the colonising movement came to the latter more than 300 years later than to the former continent.

Rivers as Highways of Development

Every river is a route followed by political power, and is therefore at the same time a point of attraction and line of direction. The Germans have pushed their way along the Elbe between the Danes and the Slavs, and along the Vistula between the Slavs and the Lithuanians or old Prussians. The river that supports an embryonic nation holds it together when developed. The influence of the Mississippi was directed against the outbreak of the Civil War in America. As pearls are strung along a cord, so the provinces of new and old Egypt are connected by the Nile. Austria-Hungary is not the Danube nation only because the river was the life nerve of its development, but also because eighty-two per cent. of Austro-Hungarian territory is included within the regions drained by it. When the natural connection of rivers is broken then this power of cohesion ceases. The political and economic disunion of the Rhine, the Main, and other German rivers preceded the dissolution of the German Empire.

Where two rivers join there is always a meeting of two lines of political tendencies, and the place of their junction is the point whence the political forces must be controlled and held together. This is the significance of the situations of Mainz, Lyons, Belgrade, St. Louis, and Khartoum. The course followed by flowing water is far less direct than that of historical movements; the latter take the shortest way, and do not continue along the stream where a loop is formed; or they may follow a tributary that runs on in the original direction of the main stream, as in the case of the very ancient highway along the Oder and the Neisse to Bohemia. The sides of sharp angles formed by a river in its course lead to a salient point as, Regensburg and Orléans. A tributary meeting the main stream at this point forms the best route to a neighbouring river, or the angle may become a peninsula, so bounded by a tributary stream at its base as almost to take the form of an island.

Rivers as Sources of Power

Breaks in the continuity of the land occasioned by rivers are caused rather by the channel in which the water flows than by the river itself. Thus we often find that dry river-beds are effective agents of this dividing up of the land. Permanent inequalities of the earth's surface are intensified by flowing water. Therefore a river system separates the land into natural divisions. These narrow clefts are ever willingly adopted as boundary lines, especially in cases where it is necessary to set general limits to an extensive territory. Thus Charles the Great bounded his empire by the Eider, Elbe, Raab, and Ebro. Smaller divisions of land are formed by the convergence of tributaries and main streams, and again still smaller portions are created by the joining together of the lesser branches of tributaries, these taking an especially important place in the history of wars: for example, those formed by the Rhine, Weser, Elbe, and Oder, and on a lesser scale by the Moselle, Seille, and Saar. Fords are always important; in Africa they have even been points at which small states have begun to develop. Rivers as highways in time of war no longer have the value once attributed to them by Frederick the Great, who called the Oder "the nurse of the army." Yet rivers were of such great moment in this respect in the roadless interior of America during the Civil War that the getting of information as to water-levels was one of the most important tasks of the army intelligence department. Rivers will always remain superior to railways as lines of communication during time of war, at least in one respect, for they cannot be destroyed.

Rivers as Dividers of Land



Professor FREDERICK RATZEL

THE INFLUENCE OF ENVIRONMENT IN THE LIFE OF NATIONS

UPON the earth, with its varied configuration and formation of land and sea, are many kinds of hindrances and limits to life.

The most obvious effect of natural region and natural boundary lies in the counteracting forces opposed by the earth through them to a formless and unlimited diffusion of life. Isolated territory furthers political independence, which, indeed, is of itself isolation. The development of a nation upon a fixed territory consists in a striving to make use of all the natural advantages of that territory. The superiority of a naturally isolated region lies in the fact that seclusion itself brings with it the greatest of all advantages. Hence the precocious economic and political development of races that dwell on islands or on peninsulas, in mountain valleys and on island-like deltas.

Often enough growth that originates under such favourable conditions leads to ruin. A young nation deems itself possessed of all so long as it has the isolation that ensures independence; it sees too late that the latter has been purchased at the price of a suffocating lack of space; and it dies of a hypertrophy of development—a death common to minor states. This was the cause of the swift rise and decline of Athens and of Venice, and of all powers that restricted themselves to islands and to narrow strips of coast.

The Rise and Death of Isolated States

The more natural boundaries a state possesses, the more definite are the political questions raised by its development. The consolidation of England, Scotland, and Wales was simple and obvious, as patent as if it had been decreed beforehand, as was also the expansion of France over the region that lies between the Alps and the Pyrenees, the Mediterranean and the Atlantic Ocean. On the other hand, what a fumbling, groping development was that of Germany, with her lack of natural boundary in the east! Thus in the great geographical features of lands lie pre-ordained movements, constrained by the highest necessity—a higher necessity in the case of some than of others. The frontier of the Pyrenees was more necessary to France than that of the Rhine; an advance to the Indian Ocean is more necessary to Russia than a movement into Central Europe. Growth is soundest when a state expands so as to fill out a naturally bounded region—as, for example, the United States, that symmetrically occupy the southern half of the continent of North America, or Switzerland, extending to the Rhine and Lake of Constance. There are often adjustments of frontiers which force the territory of a nation back into a natural region, as shown in the case of Chili, which gave up the attempt to extend its boundaries beyond the Andes, in spite of its having authorisation to do so, founded on the right of discovery, the original Spanish division of provinces, and wars of independence. A favourable external form is often coincident with a favourable internal configuration which is quite as furthering to internal continuity as is the external form to isolated development. The Roman Empire, externally uniform as an empire of Mediterranean states, was particularly qualified for holding fast to its most distant provinces, by reason of the Mediterranean Sea that occupied its very centre. Everything that furthers traffic is also favourable to cohesion. Hence the significance of waterways for ancient states, and of canals and railways for modern nations. Egypt was the empire of the Nile, and the Rhine was at one time the life-vein of the empire of Charles the Great.

Natural Boundaries of a State

A state does not always remain fixed in the same natural region. However advantageous they may have been, it must, on increasing, forsake the best of boundaries. Since one region is exchanged for another, the law of increasing areas comes into force. Every land, sea, river region, or valley should always be conceived of as an area that must be discovered,

A State must Forsake its Boundaries

inhabited, and politically realised before it may exert any influence beyond its limits. Thus the Mediterranean district had first to complete its internal development before it could produce any external effect.

This internal development first took possession of the small territories, and, mastering them, turned to the greater.

First Continent State

Thus we may see history progress from clearings in forests, oases, islands, small peninsulas, such as Greece; and strips of coast, to great peninsulas, such as Italy; isthmian situations of continental size, such as Gaul; only to come to a halt in half continents such as the United States and Canada, and continents. Europe—next to the smallest continent—has had the richest history of all, but with the greatest breaking up of its area into small



THE HOTTEST PLACE IN THE WORLD IS INHABITED BY MAN

No climate has triumphed over the endurance of man. Massowah, the most important town in the Italian Colony of Eritrea, in North Africa, is the hottest place in the world, but, like the coldest known place, it is inhabited.

divisions; Australia, the smallest continent, is the earliest to unite its parts into a continental state. Development expends all its power in bringing the areas of the three greatest land-divisions into play, and in opposing their one hundred and five million square miles to the ten and a half million of the smaller divisions; their economic action is already felt to a considerable degree. Thus there arises an alternation of isolation and expansion, which was clearly shown in the history of Rome, whose territory grew from the single city, out over the valley of the Tiber, into Apennine Italy, into the peninsula, across the islands and peninsulas of the Mediterranean, and finally into the two adjacent continents.

The boundaries of natural regions are always natural boundaries. Although this delicate subject may be left to political geography, it is by no means to be neglected by those who are interested in history, boundary questions being among the most frequent causes of wars. In addition, boundaries are the necessary result of historical movements. In case two states strive against each other in expanding, the motion of both is impeded, and the boundary lies where the movement comes to a halt. It is in the nature of things that growing states are very frequently contiguous to uninhabited regions, not to other states. This contiguity is always a source of natural boundaries. The most natural of all arise from adjacency to uninhabitable regions: first the uninhabitable lands, then the sea. The boundary at the edge of the uninhabitable world is the safest; for there is nothing beyond. The broad Arctic frontiers of Russia are a great source of power. A high mountain range, also, may separate inhabited regions—which are always State territory—by an uninhabited strip of land. After all, the sea, marshes, rivers even, are uninhabitable zones. But traffic brings connection with it, and the Rhine, which to the Romans was a moat, especially well adapted as a defence, is now, with its thirty railway bridges and thousands of vessels plying up and down and across, far more of a highway and a means of communication than a dividing line.

Nature and National Destiny

The position, form, and movements of the earth seem far enough removed from the deeds and destinies of peoples, yet the more we contemplate the latter, the more we are led to consider the earth's inclination to its axis, its approximately spherical form, and its motion, which, combined,



INHABITANTS OF THE COLDEST PLACE IN THE WORLD

Man is the most adaptable of living creatures. There is no climate in the world in which he cannot live. The lowest temperatures taken have been at Verkhoyansk, in Siberia, but the place is inhabited by people, of whom we give a group.

are the cause of the recurrence in fixed order of day and night, summer and winter. The effects of these great earthly phenomena are differently felt in every country; for they vary according to geographical location. Practically, that which most conforms to any given situation north or south of the equator is the climate of a land. Day and night are of more even length at the equator than in our country; but beyond the Polar circles there are days that last for months, and nights equally long. Scarcely any annual variation in temperature is known to the inhabitants of Java, while in Eastern Siberia Januarys of fifty degrees below freezing-point and Julys of twenty degrees above zero of Centigrade, winters during which the mercury freezes, and summers of oppressive sultriness, are contrasted with one another.

In our temperate region there is rain, as a rule, during all months, but as far north as Italy and Greece the year is divided into a dry and a wet season. Great effects are produced over the entire earth and upon all living creatures by the thus conditioned climatic differences. They must be considered at the very beginning of every investigation into history. Since we know that a fluctuating distribution of heat is caused by the $23\frac{1}{2}^{\circ}$ inclination of the earth's axis, investigation also leads us to a knowledge of further phenomena, to a consideration of the dependence of the



MAN'S TRIUMPH OVER CLIMATE: THE COLDEST PLACE IN THE WORLD

Just as man has established himself in the torrid heat of Massowah, so he can endure the highest degree of cold. The coldest place in the world, Verkhoyansk, of which this is a photograph, is the capital of a Siberian province.

winds and of the precipitation of heat upon this very same condition.

And thus we come into contact with the thousand connecting threads by which man's economic activity, health, distribution over the earth, even his spiritual and his political life, are inseparably bound up with the climate. Hence the first question that should be asked concerning a country is : What is its geographical situation ? A land may be interesting for many other reasons besides nearness or remoteness from the equator ; but that which is of the greatest interest of all to the historian is a consideration of the manifold and far-reaching effects of climate.

The First Question about a Country

The study of human geography teaches us that climate affects mankind in two ways. First, it produces a direct effect upon individuals, races, indeed the inhabitants of entire zones, influencing their bodily conditions, their characters, and their minds ; in the second place, it produces an indirect effect by its influence on conditions necessary to life. This is due to the fact that the plants and animals with which man stands in so varied a relationship, which supply him with nourishment, clothing, and shelter, which, when domesticated and cultivated, enter his service, as it were, and become most valuable and influential assistants and instruments for his development and culture, are also dependent upon climate. Important properties of the soil, the existence of plains, deserts, and forests, also depend upon climate. Effects of climate, both direct and indirect, are united in political-geographical phenomena, and are especially manifest in the growth of states and in their permanence and strength.

There is no climate that cannot be borne by man ; of all organic beings he is one of the most capable of adapting himself to circumstances. Men dwell even in the very coldest regions. The place where the lowest temperatures have been measured, Verkhoyansk, with a mean January temperature of – 54° F., is the capital of a Siberian province ; and a district where the temperature is of the very hottest, Massowah, is the most important town in the Italian colony of Eritrea.

Man can Bear all Climates

However, both heat and cold, when excessive, tend to lessen population, the size of settlements, and economic activity. The great issues of the world's history have been decided on ground situated between the tropic of Cancer and the Polar circle. The question as to whether the northern half of North America should be English or French was decided between the parallels of 44° and 48° north latitude ; and in the same manner the settlement as to whether Sweden or Russia should be supreme in Northern Europe took place a little south of 60° north. Holland did not lose and regain her Indian possessions in the neighbourhood of the equator, but in Europe ; and Spain fell from the high estate of sovereign over South and Central America because her power as a European nation had decayed.

The coldest countries in the world are either entirely uninhabited—as Spitzbergen and Franz Josef's Land—or very thinly populated. Some are politically without a master—the two territories just mentioned, for example ; some are politically occupied, as is Greenland, but are of very little value. History teaches that traffic between such colonies and the mother country may cease entirely without the mother country suffering any loss thereby. The hottest regions in the world are for the most part colonies or dependencies of European Powers. This applies to the whole of tropical Africa, Asia, Australia, and Oceania, and partly to tropical America.

Strange Divergence of a Race

The exclusion of European nations from grasping for possessions in America was not determined upon in the compromised territory of tropical America, but in the United States, a short distance south of 39° north latitude. What a difference in the parts played in history by the two branches of the Tunguse race, the one held in subjection in the cold latitude of Russia, the other conquering China, and now the sovereign power in the more temperate climate of that country ; or between the Turks who, as Yakuts, lead a nomadic life in the Lena valley, and the Turks who govern Western Asia ! Latham called the region extending from the Elbe to the Amoor—within which dwell Germans, Sarmatians, Ugrian Finns, Turks, Mongolians, and Manchurians, peoples who strike with a two-edged sword—a " Zone of Conquest." Farther to the north nations are poor and weak ; toward the equator, luxurious and enervated. The inhabitants of this central

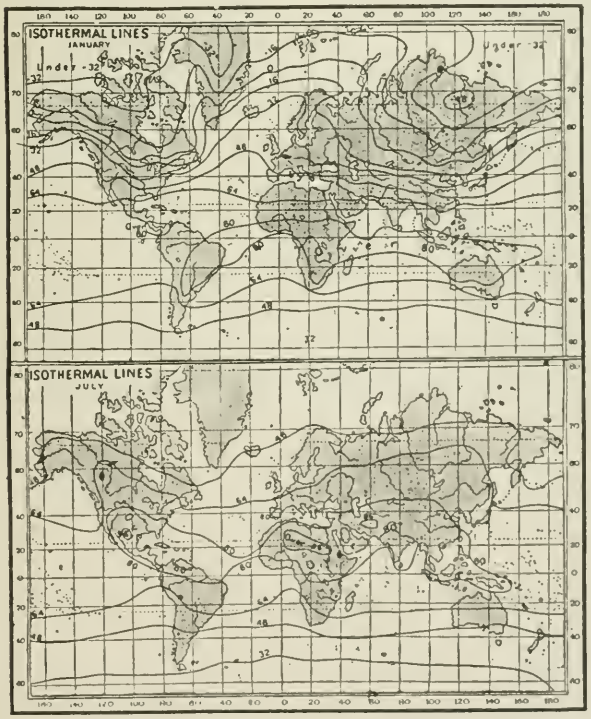
zone have over-run their neighbours both to the north and to the south, while never, either from the north or from the south, have they themselves suffered any lasting injury. The Germans have advanced from the Baltic Sea to the Mediterranean; the Slavs inhabit a territory that extends from the Arctic Ocean to the Adriatic Sea; the Turks and Mongolians have penetrated as far south as India; and there have been times when Mongolians ruled from the Arctic Ocean to Southern India. Finally, the Manchurians have extended their sphere of influence over Northern Asia as far south as the tropic of Cancer.

These differences occur over again in more restricted areas, even within the temperate zone itself. The inhabitants of the colder portions of a country have often shown their superiority to the men who dwell in the warmer districts. The causes of the contrast between the Northerners and the Southerners, which has dominated in the development of the United States, may for the most part be clearly traced: the South was weakened by the plantation method of cultivation, and slavery; its white population increased slowly, and shared to a lesser degree than did the Northerners in the strengthening, educating influences of agriculture and manufacturing industries. Thus after a long struggle that finally developed into a war, the North won the place of authority.

Sunbeams and Rainfall in History

In Italy and in France the superiority of the north over the south is partially comprehensible; and in Germany the advantages possessed by Prussia, at least in area and in sea coast, are obvious. But when in English history also the north is found to have been victorious over the south, conditions other than climatic must have been the cause. In this case elements have been present that are more deeply-rooted than in sunbeams and rainfall alone.

We must call to mind the zone-like territories of early times, occupied by peoples from which the nations of to day are descended; the boundary lines have disappeared, but the northern elements have remained in the north, and the southern elements in the south. It is well known that Aristotle adjudged political superiority and the sphere of world-empire to the Hellenes because they surpassed the courageous tribes of the north in intelligence and in mechanical instinct, and were superior to the both intelligent and skilful inhabitants of Asia in courage. "As the Hellenic race occupies a central geographical position, so does it stand between both intellectually." The thought that this union of extreme intellectuality and power in arms on Hellenic soil could be the result of ethnical infiltration did not seem to have occurred to the philosopher. The fundamental idea of Aristotle, the aristocratic state, in which the talented Hellene alone was to rule over bondmen of various origins, who were, above all, to labour for him, could not have been possible had his views been otherwise. And yet he had clearly seen that the two talents—for war and for industry—were unequally distributed among the different Hellenic stocks, and that they were also variable according to time.



EFFECT OF CLIMATE ON THE COURSE OF HISTORY

A map on which the isothermal lines are drawn is rich in historical instruction. Where the lines diverge we have regions of equal temperature; where they crowd together, districts of different mean annual temperatures lie close together. The crowding of climatic variations in any region enlivens and hastens the course of history.



HOW THE SAME PEOPLES DIFFER

The Yakuts, who lead a nomad life in the valley of the Lena, and the Turks who govern Western Asia, are of the same stock, but the genial climate has enabled the Turks to flourish while the cold has kept the Yakuts poor. These groups represent both branches of the stock.

Considering the influence even of slighter differences in climate, the locations of regions of similar mean annual temperature, and the distances which separate them from one another, cannot be otherwise than important. A map on which the isothermal lines are drawn is rich in historical instruction. Where the lines diverge we have regions of equal temperature; where they crowd together, districts of different mean annual temperatures lie close to one another. The crowding of climatic variations in any region enlivens and hastens the course of history in that region. If the variations occur only at long intervals, all parts of a large territory having approximately equal mean annual temperatures, then climatic contrasts, which act as a ferment, as it were, are not present to any appreciable extent, and their effects lose in intensity and are dispelled.

Where are greater combinations of contrasting climatic elements to be found than in Greece and in the Alps? The joining together of the natives of rich, fruitful Zürich with the poor shepherds of the forests and mountains was of the utmost importance to the development of the Swiss Confederation. It was also a union of regions of mild and cold temperatures. The possession of Central European and Mediterranean climates, that shade into one another without any sharp line of demarcation, is a great advantage to France. If climatic differences approach one another in too great a contrast, clefts in development are likely to occur, such as the gap between the Northern and the Southern States in America, and that between North and South Queensland. If it be possible to adjust the political differences, then the union of areas of

different temperatures has an invigorating effect, as shown by the history of the American Southern States since 1865.

Winds blowing in a constant direction for many months at a time were of great assistance to navigation during the days of sailing vessels, which, indeed, have not yet been entirely supplanted by steamships. Before the time of steam vessels all traffic on the Indian Ocean was closely connected with the change of the monsoons; and important political expansions have followed in the track of the same winds—for example, the diffusion of the Arabs along the east coast of Africa and in Madagascar. The influence of the trade winds on the Spanish and Portuguese discoveries along the Atlantic coast of America is well known. The south-eastern trade winds have been a cause of both voluntary and involuntary emigrations of Polynesian races. It may be clearly seen from the history of Greece what advantage was obtained by the race that won the alliance of the coast of Thrace and the wind that blows south from it with constancy during the entire fair season, often eight months long.



THE EFFECTS OF CLIMATE ON THE POWER OF PEOPLES

There is a world of difference between the two branches of the Tunguse race; the one is a poor people living in cold regions and subject to Russia; the other is the ruling race of the Chinese Empire, flourishing in a temperate climate. The upper group is composed of ruling Tunguses in China and the lower group represents Tunguses subject to Russia.

Where the wind is most variable, visiting entire countries with storms, to the great destruction of lives and property, the result is a stirring up of the survivors to exertions that cannot fail to be strengthening both to body and to mind, and of direct benefit to life in general. At the same time that the people of Holland were engaged in forcing back the ocean, they won their political liberty. In another part of the North Sea coast the Frisians receded farther and farther south, owing

to the invasions of the sea and the attacks of the natives of Holstein. The tempest that scattered the armada of Philip II. was one of the most important political events of the time; and it is not to be denied that the snowstorm in Prussian Eylau, at the beginning of the battle in which Napoleon suffered his first defeat, contributed not a little to the result.

Acclimatisation is one of the greatest of human problems. In order that a nation shall expand from one zone into another, it must be capable of adapting itself to new climates. The human race is, as a whole, one of the most adaptable of all animal species to different conditions of life; it is diffused through all zones and all altitudes up to about thirteen thousand feet above the level of the sea. But single nations are accustomed to fixed zones and portions of zones; and long residence in foreign climates leads to illness and loss of life.

One of the Greatest Problems

In some races the individuals are of a more rigid constitution than in others, and are thus less capable of adaptation. Chinamen and Jews adapt themselves to different climates far more easily than do Germans, upon whom residence in the southern part of Spain even, and to a still greater degree in Northern Africa, is followed by injurious effects. The constant outbreaks of destructive disease before which the German troops withered away are to be counted amongst the greatest obstacles opposed to the absorption of Italy into the German Empire. During the Spanish discoveries and conquests in America in the sixteenth century, whole armies wasted away to mere handfuls. The greatest hindrances to German colonisation in Venezuela are climatic diseases. Medical science has, to be sure, pointed out such deleterious influences as may be traced to unsuitable dwelling-places, nutrition, clothing, etc.; and the losses to Europe of soldiers and officials in the tropics have been greatly reduced. But even to-day deaths, illnesses, and furloughs make up the chief items in the reports sent in from every colony in the tropics. British India can only be governed from the hills, where the officials dwell during the greater part of the year.

Climate and Will-Power

Climatic influence is not limited to bodily diseases. One of the first effects of life in warm climates upon men accustomed to cold regions is relaxation of what is known as will-power. Even the Piedmontese soldier loses his erect carriage in a Neapolitan or Sicilian garrison. Englishmen in India count on an ability to perform only half the amount of work they would be capable of at home. Many inhabitants of northern countries escape the bodily diseases of the tropics; but scarcely one man of an entire nation is able to resist the more subtle alterations in spirit.

Their historical influence extends only the deeper for it. The conquering nations that advance from north to south have invariably forfeited their power, determination, and activity. The original character of the Aryans who descended into the lowlands of India has been lost. A foreign spirit rings through the Vedic hymns. West Goths and Vandals alike lost their nationalities in Northern Africa and Spain, as the Lombards lost theirs in Italy. In spite of all emigration, immigration, and wandering hither and thither, there always remains a certain fixed difference between the inhabitants of colder and those of warmer countries; it is the nature of the land, moulding the more ductile character of a people into its own form. There are differences also between the northern and the southern stocks of the same race, and thus climate exerts here greater and there lesser influence upon nations and their destinies.

The Peoples of North and South

Since it lies in the nature of climatic influences to produce homogeneity among those peoples who inhabit extensive regions of similar mean annual temperatures, it follows that a unifying effect is also produced on political divisions that might otherwise be inclined to separate from one another. In the first place, a similar climate creates similar conditions of life, and thus the northern and southern races of each hemisphere, with their temperate and their hot climates, differ widely. Climate is also the cause of similar conditions of production over large territories. Leroy-Beaulieu rightly mentioned climate—above all, the winter, during which almost every year the whole land from north to south is covered with snow—as next in importance to the configuration of the country in its unifying, cohesive effects on the Russian Empire. Winters are not rare during which it is possible



A STORM THAT CHANGED THE COURSE OF HISTORY: THE WRECK OF THE ARMADA

The weather has greatly influenced the course of history and helped to mould the fate of nations. The tempest that scattered the Spanish Armada in 1588 was one of the most important political events of the time. This picture, from the painting by J. W. Carey. illustrates the wreck of the galleon "Girona," at Giant's Causeway.

to journey from Astrachan to Archangel in sledges; and both the Sea of Azov and the northern part of the Caspian Sea are frozen over during the cold months, as well as the Bay of Finland, the Dnieper as well as the Dwina.

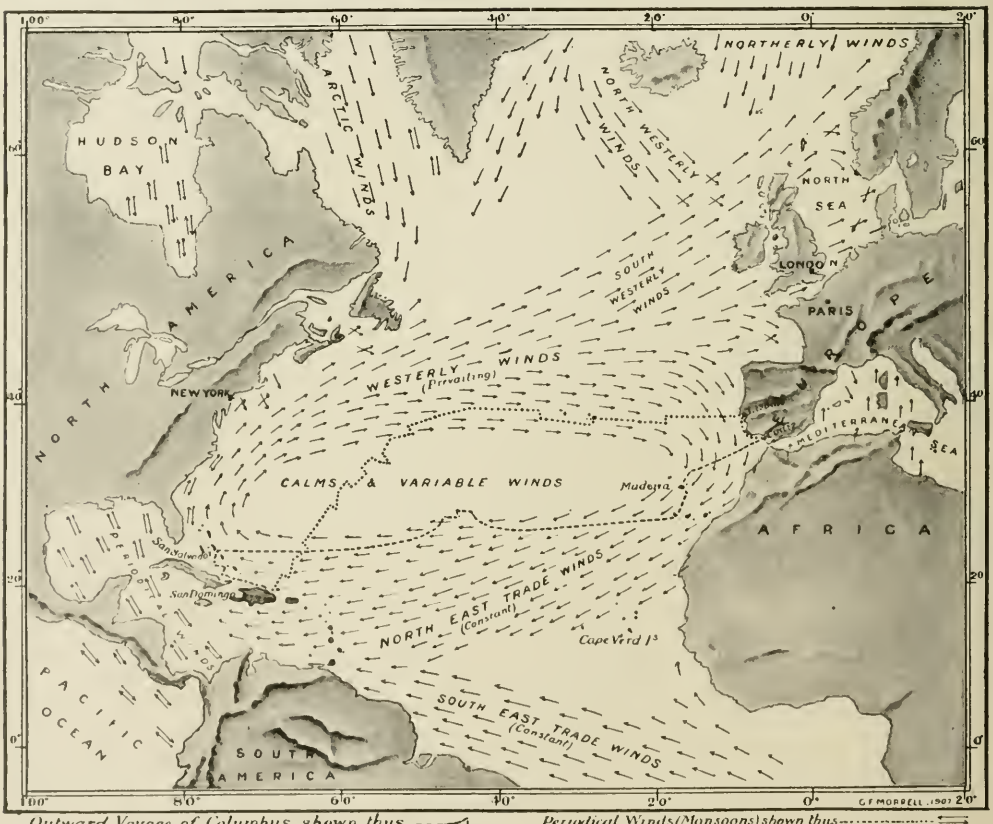
Situation determines the affinities and relations of peoples and states, and is for this reason the most important of all geographical considerations. Situation is always the first thing to be investigated; it is the frame by which all other characteristics are encircled. Of what use were descriptions of the influence of the geographical configuration of Greece on Grecian history, in which the decisive point that Greece occupies a medial position between Europe and Asia, and between Europe and Africa, was not insisted upon above all? Everything else is subordinate to the fact that Greece stands upon the threshold of the Orient. However varied and rich its development may have been, it must always have been determined by conditions arising from its contiguity with the lands of Western Asia and Northern Africa. Area in particular, often over-valued, must be subordinated to location. The site may be only a point, but from this point the most powerful effects may be radiated in all directions. Who thinks of area when Jerusalem, Athens, or Gibraltar is mentioned? When it is found that the Fanning Islands or Palmyra Island is indispensable to the carrying out of England's plans in respect to telegraphic connection of all parts of the empire with one another, merely because these islands are adapted for cable stations on the line between Queensland and Vancouver, is it not owing to their location alone, without consideration as to area, configuration, or climate?

Every portion of the earth lends its own peculiar qualities to the nations and races that dwell upon it, and so does each of its subdivisions in turn. Germany, as a first-class Power, is thinkable only in Europe. There cannot be either a New York or a St. Petersburg in Africa. Our organic conception of nations and states renders it impossible for us to look upon situation as something lifeless and passive; far rather must it signify active relations of giving and receiving. Two states cannot exist side by side without influencing each other. It is much more likely that such close relationships result from their contiguity; that, for example,

we must conceive of China, Korea, and Japan as divisions of a single sphere of civilisation, their history consisting in a transference, transplanting, action, and reaction, leading to results of the greatest moment. Some situations are, indeed, more independent and isolated than others; but what would be the history of England, the most isolated country in Europe, if all relations with France, Germany, the Netherlands, and Scandinavia were omitted? It would be incomprehensible.

The more self-dependent a situation is, the more is it a natural location; the more dependent, the more artificial, and the more it is a part of a neighbourhood. Connection with a hemisphere or grand division, identity with a peninsula or archipelago, location with respect to oceans, seas, rivers, deserts, and mountains, determine the histories of countries. It is precisely in the natural locality that we must recognise the strongest bonds of dependence on Nature. Apart from all other features peculiar to Italy, her central position in the Mediterranean alone determines her existence as a Mediterranean Power. However highly we may value the good qualities of the German people, the best of these qualities will never reach so high a development in the constrained, wedged-in, continental situation of their native land as they would in an island nation; for Germany's location is more that of a state in a neighbourhood of states than a natural location, and for this reason more unfavourable than that of France.

Natural localities of the greatest importance result from the configuration and situation of divisions of the earth's surface. The extremities of continents—such as the Cape of Good Hope, Cape Horn, Singapore, Ceylon, Tasmania, and Key West—are points from which sea power radiates; and at the same time



Outward Voyage of Columbus shown thus ----
Homeward Voyage of Columbus shown thus ---·---

Periodical Winds (Monsoons) shown thus ⟹
Prevailing & Constant Winds shown thus ⟶

POLITICAL EXPANSION HAS FOLLOWED IN THE TRACK OF THE WINDS

This map illustrating the trade winds and prevailing winds shows how important were these winds before the days of steam vessels. It shows that the outward voyage of Columbus was entirely along the track of the north-east trade winds. Where the arrows cross, as off the North-west of Scotland, we have regions of wind disturbances.





THE RIVERS OF TWO CONTINENTS AND THEIR INFLUENCE IN CIVILISATION

The influence of riverways in furthering political development may be best seen in the contrast between South America and Africa; the colonising movement came to Africa three hundred years later than to South America.



EUROPEAN COUNTRIES AND THEIR NEARNESS TO THE SEA

A country's prosperity depends greatly upon its relation to the sea. This map shows the boundaries of European countries, and the black lines indicate those countries that lie within 250 and 500 miles from the sea-coast

THE RELATION OF RIVERS AND THE SEA TO THE CIVILISATION OF COUNTRIES

they are the summits of triangular territories that extend inland and are governed from the apex. In the same way all narrowings of parts of continents are of importance. France occupies an isthmian position between ocean and sea; Germany and Austria between the North Sea, the Baltic, and the Adriatic. Some states are situated on the coast, occupying a bordering position; others occupy an intermediate location. And the more isolated situations are all fundamentally different, according to whether they are insular, peninsular, or continental. Situations in respect to the oceans are even more various. How different are Atlantic locations in Europe from those on the Mediterranean, the Baltic, or the Black Sea! Only a few nations occupy a position fronting on two great oceans. The ideal natural situation for a state may be said to be the embracing of a whole continent within one political system. This is the deeper source of the Monroe Doctrine.

The Ideal Situation for a State

Similar locations give rise to similar political models. Since there are several types of location, it follows that the histories of such locations assume typical characters. The contrast between Rome and Carthage, their association with each other, exhibiting the reciprocal action of the characters of the northern and southern Mediterranean coasts, is repeated in similarly formed situations in Spain and Morocco, in Thrace and Asia Minor, and on a smaller scale in the Italian and Barbary ports. In all these places events similar to those in Roman and Punic history have taken place. Japan and England are unlike in many respects; yet not only the peoples, but also the political systems, of the two island nations have insular characteristics. Germany and Bornu are as different from each other as Europe is from Africa, but central location has produced the same peculiarity in each—a source of power to the strong nation, of ruin to the weak.

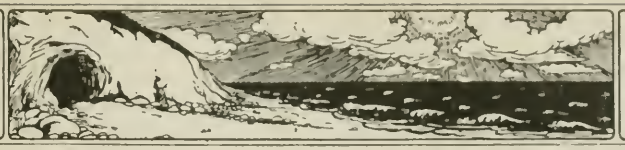
Contrasts and Comparisons

Contiguity with neighbouring states brings with it important relationships. The most striking examples of such contiguity are to be seen in nations that are cut off from the coast of their continent and completely surrounded by other countries. Owing to the constant reaching out for more territory, such a situation in Europe, as well as in other continents, signifies unconditional loss of independence. Only connection with a great river can prevent the dissolution of a nation so situated. The instinctive impulse to extend its boundaries to the sea, shown by all nations, arises from the desire to escape an insulated continental position. Only the very smallest of states, such as Andorra and Liechtenstein—which, moreover, do not aspire to absolute independence—could have existed for centuries in the positions that they occupy. A medial situation held by one country between two others is also, in point of risk, comparable to a completely encompassed position. France was so situated when Germany and Spain were under the same ruler. The alliance of two neighbouring lands may place a third state in a similar position.

Whatever the individual locations of neighbouring states may be, their number is a matter of great importance. It is better to have a multitude of weak neighbours than a few strong ones. The development of the United States that gradually ousted France from the south, Mexico from the west, and Spain from both south and west, in order to be in touch with the sea on three sides, has, with the decrease in neighbouring Powers, resulted in an enviable simplification of political problems.

What is National Progress?

A nation covering various dispersed and scattered situations is to be seen at the present day only in regions of active colonisation and in the interiors of federal states. Powerful nations are consolidated into a single territory. We may see everywhere that when the area of distribution of a form of life diminishes in extent, it does not simply shrink up, but transforms itself into a number of island-like sites, giving the appearance that the form, of life is proceeding from a centre of the conquest of new territory. In what does the difference lie between islands of progress and of recession? With nations and states progress lies in the occupation of the most advantageous sites; retrogression lies in their loss and sacrifice. The American Indians, forced back from oceans, rivers, and fertile regions, form detached groups of retrogression; the Europeans who took these sites from them formed isles of progress as, one after another, they seized the islands, promontories, harbours, river-mouths, and passes.



Professor FREDERICK RATZEL

THE SIZE AND POWER OF NATIONS

IT is not without reason that so much importance is attached to extent of surface in geography. Area and population represent to us the two chief characteristics of a state; and to know them is the simplest means—often too simple—for obtaining a conception of the size and power of a nation. We cannot conceive of any man, much less a human community, without thinking of surface or ground at the same time. Political science may, through a number of clever conclusions, reduce the area of a state to a mere national possession; but we all know that territory is too tightly bound up with the very life of a state for it to assume a position of so little importance. In a nation, people and soil are organically united into one, and area and population are the measure of this union. A state cannot exchange or alter its area without suffering a complete transformation itself. What wonder, then, that wars between nations are struggles for territory? Even in war the object is to limit the opponent's sphere of action; how much more does the whole history of nations consist in a winning and losing of territory. The Poles still exist as they did in former times; but the ground upon which they dwell has ceased to belong to them in a political sense, and thus their state has been annihilated.

The State and its Territory

During the course of history we constantly see great political areas emerging from the struggle for territory. We see nations from early times to the present day increasing in area: the Persian and Roman Empires were small and mean compared with those of the Russians, English, and Chinese. Also the states of peoples of a lower grade of culture are insignificant compared with the states of more advanced races. The greatest empires of the present day are the youngest; the smallest — Andorra, Liechtenstein, San Marino. Monaco, appear to us only as venerable, strange petrifications of an alien time. The relation of surface to the growth of spheres of commerce and of means of communication is obvious. Communication is a struggle with area; and the result of this struggle is the overcoming of the latter. The process is complicated because, as control is gained over area, one also acquires possession of its contents: advantages of location, conformation, fertility, and, by no means least, the inhabitants of the territory themselves. But the loss in value of all these things, brought about by their being widely scattered throughout an extensive area, can be overcome only by a complete control of the region over which they are spread.

The Vast Modern Empires

The development of commerce is the preliminary history of political growth. This applies to all races, from Phœnicians to North Americans, who point out to us a post of the American Fur Company as the germ from which Nebraska developed. Every colony is a result of traffic; even in the case of Siberia, merchants from European Russia travelled thither as far as the Ob about three centuries before its conquest. The phrase "conquests of the world's commerce" is perfectly legitimate. The building of roads is a part of the glory of the founders and rulers of nations. To-day, tariff unions and railway politics have taken the place of road-making. It has always been so; both state and traffic have had the same interest in roads and thoroughfares. Traffic breaks the way, and the state improves and completes it. It seems to be certain that the firmly organised state in ancient Peru opened the roads which were later a service to traffic. In a lower phase of development we may see commerce leading directly to the establishment of states; in a higher, to victory in war, arising from commercial and railway communication. It would be impossible for France to construct the Sahara Railway without first subjugating the Tuareg and seizing their country.

Traffic Leads to Empire

Highways of traffic as weapons for hostile states, the important part played by commercial nations and the culture of strictly industrial and commercial peoples, the endeavour of traffic to be of service to the policies of states, and, finally, the powerful reactions caused by the removal and disuse of thoroughfares of commerce to races, nations, and to entire spheres of civilisation—can only be indicated here.

Every political movement, whether it be a warlike expedition or a peaceful emigration, is preceded by movements which are not political. Inquiries must be made and relations instituted; the object must be determined, and the road explored. All the while that knowledge of the world beyond the bounds of a country is being gained, there is also an imperceptible broadening of the geographical horizon; and this not only widens out, but becomes clearer. Fabulous tales are circulated as to the terrors of strange countries; but the fear gradually vanishes as our knowledge increases, and with the latter a spirit of political enterprise awakens One can say that every trader who passes the bounds of his country bears his state with him in his load of merchandise. To be sure, there are both long preparations made and quick leaps taken in the processes of commerce. Roman merchants prepared the way to a knowledge of Gaul and its conquest. But how different the attitude of the Romans to Gaul before and after the time of Cæsar! What a difference in the Spanish estimate of the worth of American colonies before the days o Cortez and Pizarro, and afterward! The broader and clearer the geographical horizon grows, the greater become political schemes and standards of policy.

Every Trader Bears his State with him

The widening of the geographical horizon and the clearing up of mysteries beyond are invariably a result of the travels of individuals or of groups for peaceful purposes. The first of these purposes is commerce; the chase and fishing are also to be taken into consideration; and the involuntary wanderings of the lost and strayed are not to be excluded. Europe possessed a Pytheas and a Columbus who discovered new worlds; and every primitive community had its explorers, too, who cleared paths from one forest glade to another. If such pioneers return, they also bring back with them contributions to the general stock of knowledge of the world without, and it becomes less difficult for others to follow in their footsteps; finally armies or fleets may advance, conquering in their tracks. Whenever traffic makes busy a multitude of men, and employs extensive means by which to carry on its operations, the truth of the saying, "The flag follows trade," is finally established in its broadest sense. With all this struggling and labouring, territory does not fall to the state simply as a definite number of square miles. Just as single individuals bring enlightenment to the state, in the same manner the idea of area arises in the intelligence of the aggregate.

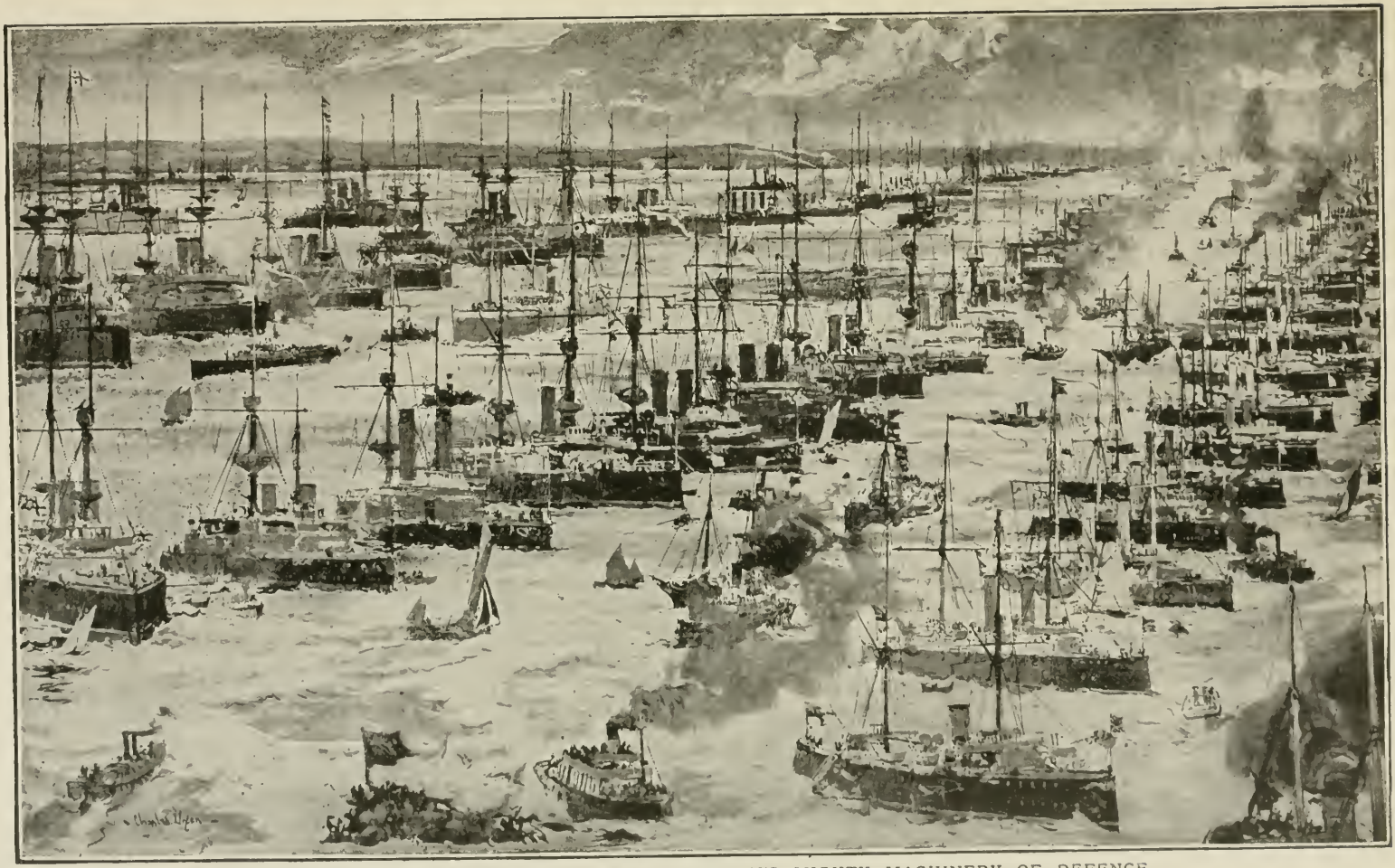
Causes of National Success and Failure

When we say that an area increases, we must remember that by this we mean that the intelligence which views it and the will that holds it together have increased, and naturally, also, that which is requisite for rendering intelligence and will capable for their work. In this lies one of the greatest differences that exist between nations, one of the greatest causes of success and failure in development.

A disposition for expansion that advances boundaries to the farthest possible limit is a sign of the highest state of civilisation. It is a result of an increase both of population and of intellectual progress.

There is something very attractive in the small political models of early times: those city-states whose development had in definiteness and in precision a great deal of the lucidity and compactness of artistic compositions. Lübeck and Venice are more attractive than Russia. The concentration of the forces of a small community in a limited, beautifully situated, and protected location, is a source of a development that takes a deeper hold on all the vital powers of a people, employing them more extensively, and therefore ending in a more rapid and definite perfection of historical individuality. Thus small areas take the lead of large territories in historical development; and we may see many examples of a slow but sure transference of leadership from the small area to the large, and of the gradual diffusion of progress in the latter. Thus Italy followed Greece; Spain, Portugal; England, Holland.

Small States in Fine Situations



THE COMMAND OF THE SEAS: GREAT BRITAIN'S MIGHTY MACHINERY OF DEFENCE

Great Britain's strength is a proof of the tremendous importance of the sea as a factor of political power. This is a bird's-eye view of the British Navy assembled at Spithead.

The opposite of this is precocity in growth: the earlier a state marks out its limits without consideration for later expansion, the sooner the completion of its development. The growth in area of Venice and the Low Countries stood still, while all about them territories increased in size. The development of small countries flags unless the increase of population within a limited area leads to that disquiet and emigration and expulsion of citizens especially characteristic of small nations: the horizon grows too narrow for the times; patriotism becomes local pride; and the most important life forces are impaired. Thus minor nations, through which races are separated into little groups, develop: the great national economic and religious cohesive forces are broken up; and even the political advantages of the ground are reduced in value through disintegration.

Under such conditions the impulse for new growth must be brought in from without. The native, who is acquainted with only one home, is always inferior to the foreigner, who has a knowledge of two lands at least. It is remarkable how numerous are the traditions of the establishment of states by strangers. Sometimes these are mighty hunters, as in Africa; often they are superior bearers of civilisation, as in Peru; and an especially large number of them have descended to the earth from heaven. In the face of history which tells of the foundation of a Manchurian dynasty in China and a Turkish in Persia, of the establishment of the Russian Empire by wandering North Germans, and that of the great nations in the West Sudan by the Fulah shepherds —these mythical accounts, although they may appear decidedly incredible when taken singly, as a whole are probable enough. The foundation of the nation of Sarawak in Borneo by Brooke is reality and corresponds with many of the old legends of the formations of states.

Founding of States by Strangers

The broad conception of a state, which acts as a ferment does on a disrupted mass, is introduced from one neighbouring nation into another, each sharing in its production. When such territories are adjacent, the state situated in the most powerful natural region overgrows the other. The more mobile race brings its influence to bear on the less mobile, and possibly draws the other along with it. The more compact, better organised and armed state intrudes on weaker nations, and forces its organisation upon them. A nation left to itself has a tendency to split up into small groups, each of which seeks to support its own life upon its own soil, heedless of the others; and as such groups increase, they always reproduce in their own images: families families, and tribes tribes. We find all sorts of measures taken by some nations to limit an increase in growth that would carry them beyond their old boundaries and place them under new conditions of life. Many an otherwise inexplicable custom of taking human life is a result of this tendency; perhaps, in some cases, even cannibalism itself. This impulse towards limitation would have rendered the growth of nations impossible had not the antithetical force of attraction of one to another led to growth and amalgamation. Truly, the advance from a condition of isolated, self-dependent communities to one of traffic between state organisms, which must of necessity lead to ebb and flow and union of one group with another, is one of the greatest turning-points in the history of man.

A Great Turning-point in History

Since the tendency has been for territory to become the exclusive reward of victory in the competition of nations, balance of territorial possessions has grown to be one of the chief ends of national policies. The phrase "balance of power," which has been so often heard since the sixteenth century, is no invention of diplomats, but a necessary result of the struggle for expansion. Hence we find an active principle of territorial adjustment and balance in all matters concerning international politics. It is not yet active in the small and simple states of semi-civilised peoples; such states are much more uniform, for they have all originated with a uniformly weak capacity for controlling territory. In addition, the principle of territorial isolation hinders the action of political competition. As soon, however, as necessity for increased area leads to the contiguity of nations, the conditions alter. The state that occupies but a small region strives to emulate its larger neighbour. It either gains so much land as is necessary to restore equality, or forces a decrease in the neighbour's territory.

Nations as Neighbours

Both alternatives have been of frequent occurrence. Prussia expanded at the expense of Schleswig and Poland in order to become equal in territory to the other great Powers. The whole of Europe fought Napoleon until France had been forced back within such boundaries as were necessary to international balance.

The Balance of Power

Austria lost provinces in Italy and replaced them with others in the Balkan Peninsula. This loss and gain appears to us, in looking over an easily epitomised history, such as that of France, as an alternation of violent waves and temporary periods of rest attained whenever a balance is reached. Therefore it is not owing to chance that the areas of Austria, Ge.many, France, and Spain may be respectively designated by 100, 86, 84, and 80, that the area of Holland is to that of Belgium as 100 is to 90, and that the United States stands to Canada as 100 to 96. To be effective, such balances must presuppose equal civilisations, similar means for the acquirement o power. Rome was so superior to her neighbours in civilisation that she could not permit any territorial balance. Perhaps the adoption of the River Halys as the boundary between Media and Lyd a was a first attempt to establish a national system on the principle of balance instead of "world" dominion.

Our standards for measuring the areas of countries have constantly increased during the growth of historical territories. The history of Greece is to us but the history of a small state; and how many years shall pass before that of Germany, Austria, and France will be but the history of nations of medium size? England, Russia, China, and he United States include the better half of the land of the world; and to-day a British Empire in the other half could not be conceivable. Development has ever seized on greater

A New British Empire is not Conceivable

and greater areas, and has united more and more extensive regions into aggregates. Thus it has always remained an organic movement. The village-state repeats itself in the city-state, and the family-state in the race-state, the smaller ever being reproduced in greater forms. The smallest and greatest nations alike retain the same organic characteristics more or less closely united to the soil.

The surface of a state bears a certain relation to the surface of the globe, and according to this standard is the land measured upon which the inhabitants of a nation live, move, and labour. Thus it may be said that the 208,687 square miles of the German Empire represent about $\frac{1}{19}$ of the entire surface of the earth; further, that the empire has a population of 60,500,000, from which the ratio of 5·45 acres to each individual follows. Although it is true that wholly uninhabited or very thinly populated regions, high mountains, forests, deserts, etc., may be valuable from a political point of view, nevertheless the whole course of the world's history shows us that, as a general rule, the value of territory increases with the number of inhabitants that dwell upon it. Thus, before their disunion, Norway-Sweden, with an area of 297,000 square miles—two-fifths greater than that of the German Empire—but with a population of 6,800,000, cannot be looked upon as a first-class Power; while Germany closely approaches the Russian Empire in strength, for although its area is but $\frac{1}{3}$ that of the

Area Does Not Mean Power

latter, its population is only one-half less. Thus area alone is never the deciding factor of political power. In the non-recognition of this fact lies the source of the greatest errors which have been made by conquerors and statesmen. The powerful influence that small states, such as Athens, Palestine, and Venice, have exerted on the history of the world proves that a great expanse of territory is by no means indispensable to great historical actions. The unequal distribution of mankind over a definite area is a much more probable source of political and economic progress.

Civilisation and political superiority have always attended the thickly populated districts. Thus the whole of development has been a progression from small populations dwelling in extensive regions to large populations concentrated in more limited areas. Progress first awoke when division of labour began to organise and differentiate among heaped-up aggregates, and to create discrepancies promoting life and development. A simple increase of bodies and souls only strengthens that which is already in existence by augmenting the mass. In China, India, and Egypt, population has increased for a long time; but development of civilisation and of political power has been unable to keep pace with it.



Professor FREDERICK RATZEL

THE FUTURE HISTORY OF MAN

LOOKING back upon the history of man, it appears to us the history of the human race as a life phenomenon bound and confined to this planet alone. We are thus unable to form any conception of progress into the infinite, for every tellurian life-development is dependent upon the earth, and must always return to it again. New life must follow old roads. Cosmic influences may broaden or narrow the districts within which man is able to exist. This was experienced by the human race during the Glacial Period, when the ice sheet first drove men toward the equator, and later, receding, enabled them once more to spread out to the north. The limits of world life in general depend upon earthly influences; and thus, for mankind, progress limited by both time and space is alone possible.

Man and the Universe

Perhaps it would be well, for the elucidation of the question of development, were geography to designate as progress only that which from sufficient data may be established as such beyond all doubt. Thus, to begin with, we have learned to know of a progress in space—man's diffusion over the earth—which proceeds in two directions. The expansion of the human race signifies not only an extension of the boundaries of inhabited land far into the Polar regions, but also the growth of an intellectual conception of the whole world.

Together with this progress there have been countless expansions of economic and political horizons, of commercial routes, of the territories of races and of nations — an extraordinarily manifold growth that is continually advancing. Increase of population and of the nearness of approach of peoples to one another goes hand in hand with progressing space. Mankind cannot become diffused uniformly over new areas without becoming more and more familiar with the old. New qualities of the soil and new treasures have been discovered, and thus the human race has constantly been made richer. While these gifts enriched both intellect and will, new possibilities were all the while arising, enabling men to dwell together in communities; the population of the earth increased, and the densely inhabited regions, at first but small, constantly grew larger and larger.

Manifold Growth of Mankind

With this increase in number, latent abilities came to life; races approached one another; competition was entered into; interpenetration and mingling of peoples followed. Some races acted mutually in powerfully developing one another's characteristics; others receded and were lost, unless the earth offered them a possibility of diffusion over better protected regions. Already we see in these struggles the fundamental motive of the battle for area; and at the same time, on surveying this progress, we may also see the limit set to it—that increase in population is unfavourable to the progress of civilisation in any definite area, if the number of inhabitants become disproportionately large in respect to the territory occupied. Many regions are already over-populated; and the numbers of mankind will always be restricted by the limits of the habitable world.

History is the Growth of Differences

Already in the differences in population of different regions lie motives for the internal progress of man; but yet more powerful are those incentives to the development of internal differences in races furnished by the earth itself through the manifoldness of its conformation.

The entire history of the world has thus become an uninterrupted process of differentiation. At first arose the difference between habitable and uninhabitable regions, and then within the habitable areas occurs the action brought about by variations in zones, divisions of land, seas, mountains, plains, steppes, deserts, forests—the whole vast multitude of formations, taken both separately and in combination. Through these influences arise the differences which must at first develop to a certain extent in isolation before it is possible for them to act upon

one another, and to alter, either favourably or unfavourably, the original characteristics of men.

All the variations in race and in civilisation shown by different peoples of the world, and the differences in power shown by states, may be traced to the ultimate processes of differentiation occasioned by variations in situation, climate, and soil, and to which the constantly increasing mingling of races, that becomes more and more complex with the diffusion of mankind over the globe, has also contributed. The birth of Roman daughter states, and the rise of Hispano-Americans and Lusitano-Americans from some of these very daughter nations, are evidences of a development that ever strives for separation, for diffusion over space, which may be compared only to the trunk of a tree developing, and putting forth branches and twigs. But the bole that has sent forth so many branches and twigs was certainly a twig itself at one time; and thus the process of differentiation is repeated over and over again. Progress in respect to population and to occupied area is undoubted; but can these daughter nations be compared to Rome in other respects? They have shown great powers of assimilation and great tenacity, for they have held their ground. Nevertheless, their greatest achievement has been to have clung fast to the earth; in other words, to have persisted. Certainly this is far more important than the internal progress in which the branches might perhaps have been able to surpass the older nation.

Earth's Variety Reflected in its Peoples

It is an important principle that since all life is and must be closely attached to the soil, no superiority may exist permanently unless it be able to obtain and to maintain ground. In the long run, the decisive element of every historical force is its relation to the land. Thus great forces may be seen to weaken in the course of a long struggle with lesser forces whose sole advantage consists in their being more firmly rooted in the soil. The warlike, progressive, on-marching Mongols and Manchus conquered China, it is true, but they have been absorbed into the dense native population and have assumed the native customs. The same illustration applies to the founding of nations by all nomadic races, especially in the case of the Southern European German states that arose at the time of the migration of Germanic peoples. The health and promise of the English Colonies in Australia present a striking contrast to the gloom that reigns over India, of which the significance lies only in a weary governing, conserving, and exploiting of three hundred millions of human beings. In Australia the soil is acquired; in India only the people have been conquered. Will a time ever come when all fertile lands will be as densely populated as India and China? Then the most civilised, evolved nation will have no more space in which to develop, maintain, and root its better characteristics; and the success of a state will not result from the possession of active forces, but from vegetative endowments—freedom from wants, longevity, and fertility.

Decisive Element in a Nation

Even though the future may bring with it a union of all nations in the world into the one great community already spoken of in the Gospel of John, growth may take place only through differentiation. And thus there is no necessity for our sharing the fear that a world-state would swallow up all national and racial differences, and all variations in civilisation.

The Goal of the Nations

From the fact that history is movement, it follows that the geographer must recognise the necessity for progress in space in the sense of a widening out of the historical ground, and a progressive increase of the population of this ground; further, a development toward the goal of higher forms of life together with an uninterrupted struggle for space between the older and newer life-forms. Yet, for all this, the definite bounds set to the scene of life by the limited area of our planet always remain.

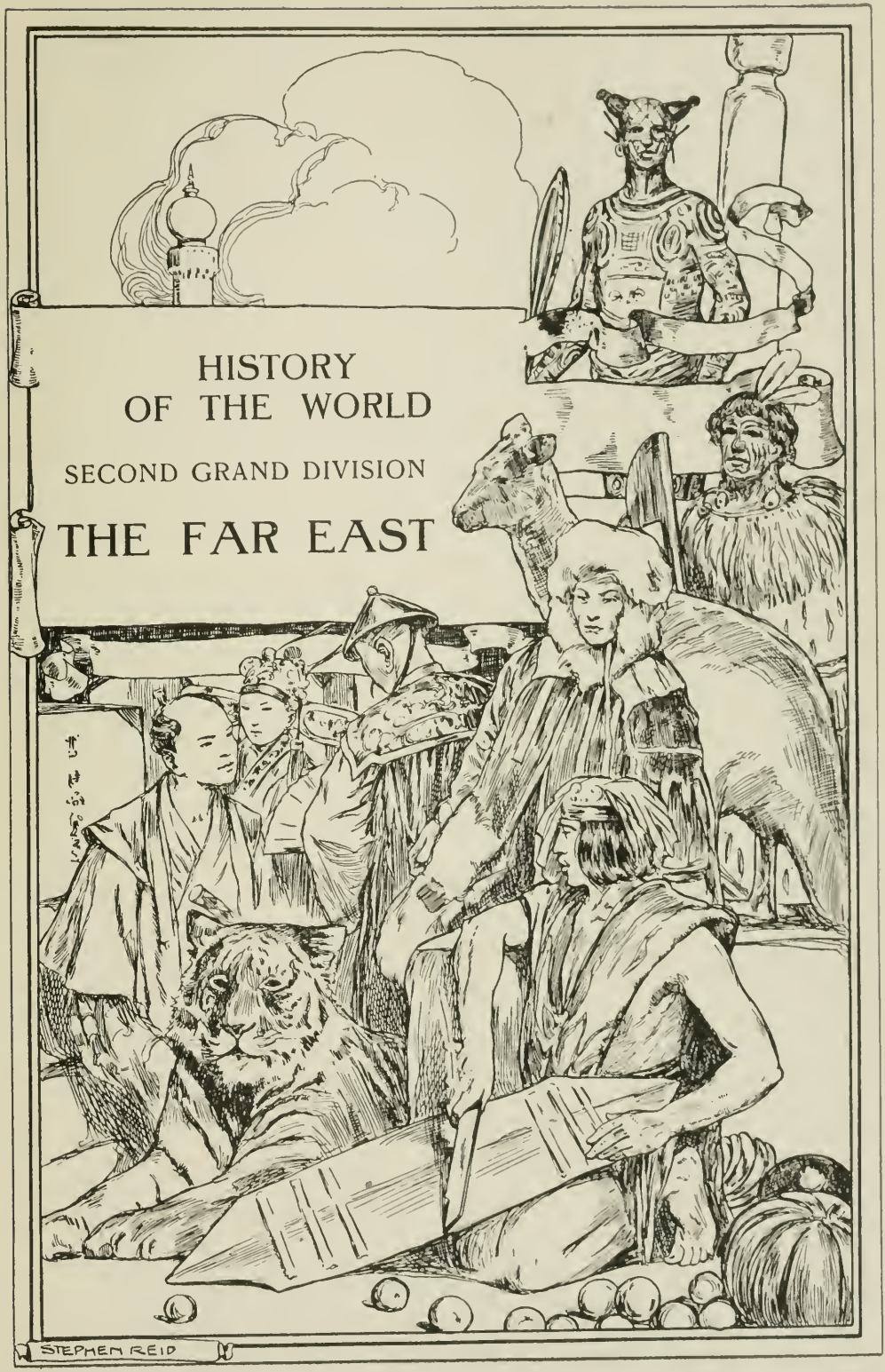
Finally, all development on earth is dependent on the universe, of which our world is but a grain of sand, and to the time of which what we call universal history is but a moment. There must be other connections, definite roads upon which to travel, and distant goals, far beyond. We surmise an eternal law of all things; but in order to *know*, we should need to be God himself. To us only the belief in it is given.

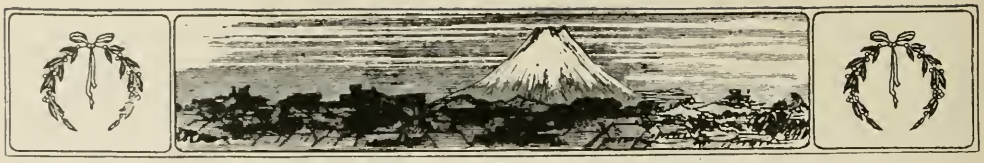
FREDERICK RATZEL



THE FAR EAST DIVISION OF THE HISTORY OF THE WORLD

This History begins with the East and comes westward round the world. Japan is therefore the first country to come into its survey, and from Japan we travel to Siberia, which, though extending far west, must be treated as one. After Siberia come China and Korea; and Australia, Oceania, and Malaysia all come into the "Far East" when thus treated geographically. The whole of the white portion of this map is treated in the Grand Division which now opens.


HISTORY
OF THE WORLD
SECOND GRAND DIVISION
THE FAR EAST
STEPHEN REID



SECOND GRAND DIVISION

THE FAR EAST

The Far East falls into two sections, Asiatic and Oceanic.

The Asiatic comprises the insular empire of Japan ; and, on the continent, China, Korea, and Siberia, the extreme northern territory which, though extending far westward, must be treated as one.

The Oceanic division includes the Australian continent, with the island of Tasmania ; the Pacific islands grouped under the names of Melanesia, Micronesia, and Polynesia, to which last New Zealand is attached, the whole being conveniently associated under the name of Oceania ; and the Malay Archipelago, or Malaysia, lying between Australia and the Asiatic continent.

Of these three sections of Oceanic Far East only Malaysia has a record extending over centuries. The history of the other two, till the white sea-going races began to settle among them, is inferential, conjectural. A doubt was suggested whether New Zealand should be attached rather to Australia than to Oceania, for the reason that it has developed into one of the group of autonomous states which make up so large a portion of the British Empire ; but this consideration must clearly yield to those based on geography and ethnology.





PLAN

THE INTEREST & IMPORTANCE OF THE FAR EAST
Angus Hamilton

JAPAN
Arthur Diósy and Max von Brandt

SIBERIA
Dr. E. J. Dillon and other writers

CHINA
Sir Robert K. Douglas, W. R. Carles, C.M.G., and other writers

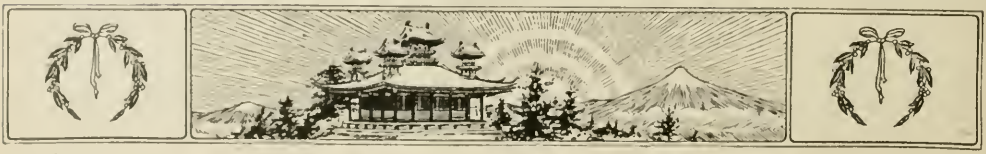
KOREA
Angus Hamilton

AUSTRALIA & OCEANIA
Hon. Bernhard R. Wise and Professor Weule

MALAYSIA
Basil Thomson and other writers

INFLUENCE OF THE PACIFIC OCEAN IN HISTORY

For full contents and page numbers see Index



LANDS & PEOPLES



OF THE FAR EAST

THE INTEREST AND IMPORTANCE OF THE FAR EAST

BY ANGUS HAMILTON

THE influence of environment upon a people is seldom shown more prominently than in the high degree of civilisation attained by the early Chinese.

Although the records are shrouded in mystery and marred by discrepancies, a consensus of scientific opinion traces the origin of the Chinese to a nomad tribe who, setting out from the shores of the Caspian, continued to wander until it found a home on the banks of the Yellow River and in the plains of Shansi. Under the influence of these immigrants, the rude manners of the aboriginals gave way to conditions in which a knowledge of the smelting of iron and the resources of agriculture was acquired. In the upward process of development, the weaving of flax into garments and the spinning of silk from cocoons followed; then, with primeval chaos reduced to order and the faculties quickened by habits of industry, the beginnings of government were made in the separation of the tribes from one another under their own leaders.

While conditions of a settled existence were in course of attainment within the region which is now known as China Proper, the spectacle of a prosperous civilisation, reacting upon the uncouth instincts of tribes dwelling among the grassy uplands of Mongolia and the plains of Manchuria or amid the ice-clad fastnesses of the mountains and forest-strewn valleys of the farthest north, was presently to be responsible for the rise of predatory races, who, in the zenith of their strength, regarded the teeming cities of the south as lawful prizes. While the northern heights of Asia were producing a race that was to leave an indelible impression on the whole of the Asiatic Continent, the evolution of a no less specific type was proceeding in the islands off the coast. Carried by a wave of migration from India, which lapped the coast of Malaysia, Indo-China and Polynesia, and mingled in the islands of the Yellow Sea with a stream from New Guinea so that separate ethnographic identities were lost, were tribes who looked to the ocean for their existence much as the earlier Chinese relied upon the proceeds of their husbandry and the northern nomads upon their flocks.

Glancing at the people living amid the plains, the uplands, and the islands, it will be seen that an irresistible force was enveloping the several races, moulding their instincts and idiosyncrasies in accord with the nature of their environment. Thus, while the Chinese, under the incentive of a knowledge of arts and crafts, had already produced, in 2356 B.C., a system of civilisation destined to endure to our time, the nomads and the islanders, unqualified by knowledge and controlled by climate, were hardly removed from a state of savagery a few centuries before the Christian era.

If the passage of 4,000 years has affected the Chinese no more than the gliding of an hour, the existence of this

great impassive people has not been without its effect upon the nations of Europe as upon the races of the Farthest East.

A point of ancient contact between Christendom and the world of Confucius, reflecting, in contemporary Japan to-day the more permanent qualities of its teaching, China has stirred the spirits of the adventurous in all ages by its singular graces of refinement, its hidden wealth and the exquisiteness of its artistic perceptions. Arousing the curiosity of the Arab traders as early as the eighth century, it was known to the ancients, if they journeyed by the Southern Sea, as the kingdom of Sin, Chin, Sinæ, or China, in corruption, perhaps, of the word Tzin—under which dynasty occurred, in 250 B.C., the fusion of several petty kingdoms into an organic empire; or by the name of Seres if, traversing the longitude of Asia, they came by the overland route. Known to the Middle Ages by the name of Cathay—corrupted from Kitai, the name by which China is still described by Russia and by the races of Central Asia, but which itself sprang from the Khitans, the first of the northern dynasties—it represented to European commerce of the thirteenth century the embodiment of wealth, romance, and mystery; much as its position, maintained unchanged through long centuries, had made it the actual repository of the records of Central, as well as Southern, Asia.

Eternal Mystery of China

Contemporary with the early Egyptians, the Assyrians, and the Hebrews, and comprising an empire that in 241 B.C. represented as nearly as possible the present limits of the Eighteen Provinces, the Middle Kingdom has been affected by the great upheavals of the Western world as little as she herself has troubled to impress her methods and manner of government upon the aboriginal races beyond her borders. Indeed, filled with a lofty disdain of the outer barbarians, it was not until the chance migration to Korea of some five thousand Chinese under Ki-tze, in 1122 B.C., that the ethical, social, and political systems in vogue in China were carried further afield. Once transplanted, however, the aboriginal life of the cave-dwellers of the peninsula gave way before the superior culture of Ki-tze's followers, and within the course of the succeeding thousand years a cluster of independent states, fashioned upon the parental model, was firmly established.

Korea, the Middle Kingdom

Although in the centuries just before the Christian era there was a constant interchange of communications with these states of the Eastern Peninsula, the classic conservatism of the Middle Kingdom was unabated by any expression of curiosity or interest in the welfare of the unknown islands. Yet the islanders, confronted with a struggle for existence, had risked the perils of many voyages to the neighbouring coasts, spreading wonderful stories of their own land and returning with ample evidences of the power and importance of the Korean kingdom. Unconscious of this intercourse, but by reason of it, China, the tutor of Korea, became through the agency of her pupil a determining factor in the upward progression of the islanders when, between 290 B.C. and 215 B.C., in consequence of dynastic difficulties, a steady stream of inhabitants from the peninsula passed from the Land of Morning Radiance eastwards with the intention of settling on the coasts of Japan, with whose inhabitants, in fact, they at once merged.

Though at the other end of the pole of human endeavour in comparison with the Chinese, and familiar only with the elemental accessories to life, the islanders, under the influence of this alien strain, at the dawn of our era had emerged from a state of tribal control to the recognition of the authority of a single and supreme ruler. Two centuries later Japanese arms were strong enough to invade Korea, where several victories were gained; but even then the Middle Kingdom maintained no communication with the islands of the Yellow Sea, and was more or less indifferent to the rise of over-sea relations between her vassal and the mariners from the East. It is possible to trace to this obliquity in the political vision of the Celestial Empire of the day much of the subsequent havoc that the self-same race were to inflict upon the coasts of Asia. Impressed with no consideration for the interests of the mainland, and troubled by no sense of material responsibility, Japanese corsairs harried the Chinese and Korean coasts unmercifully, finding in the occupation an outlet for that primitive but inherited instinct for aggression that stimulates the race to-day.

Japan at the Dawn of Our Era

Disturbed less by the appearance of an island Power than by a confederacy of barbarian clans that, by 1000 A.D., had

exerted a mastery over Mongolia, Tartary, and Manchuria, and a century later served as a menace to the safety of the dynasty itself, the Celestial Empire was beset on two sides by enemies who were attracted by the prosperity of its people. Unmindful to a great degree of the dangers which were accumulating, an instinct for and an interest in trade, confirmed by the revelation of the self-supporting character of an empire that reached to Cochin-China in one direction and the Pamirs in another, prompted the Chinese to neglect the arts of war in their preference for the triumphs of peace.

Characterised by a capacity for infinite pains, and possessed of a complete understanding of the varied resources of agriculture, the Chinese insensibly pursued a path leading always in a contrary direction to those marked out by Nature for the islanders, as for the fierce nomads of the steppe. Thus innately addicted to habits of peace, centuries upon centuries of undisturbed prosperity chastened natures that were never very warlike; whereas the exact inversion of this existence propelled those hordes of Tartars, Huns, Turks, Khitans, Kins, Mongols, and Manchus to leave the Far North in a disfiguring passage through Asia, and bade the islanders release their sails in expeditions against Korea. It was not enough for the founder of the Tzin dynasty to fortify his northern frontiers by the construction of the Great Wall, or for that great warrior Panchow to drive the Huns before him to the Oxus itself, or for the rulers in the long period of disunion which unites the fall of the Han dynasty to the rise of the Sung to compromise with the leaders of successive rushes of barbarian horsemen by matrimonial alliances with their families. The cause lay in the foundations of the race itself. Yet, such was the insidious character of the land against which these mounted hordes so often flung themselves that, although the imminence of attack ultimately became a thing with which the Government of China was wont to conjure the peaceful, well-contented lower classes and the luxury-loving upper classes, the effect of each invasion was dissipated so soon as the invaders experienced the subtle blandishments of Chinese civilisation.

The Peaceful Path of the Chinese

Presented with remarkable clearness, we have an array of devastating invasions, the one following the other in rapid succession and occasionally assuming such dimensions that the operations riveted the attention of Europe upon the little-known lands of Asia, which in most instances required only the passage of a few centuries for the minutest vestige to be obliterated. Thus the Kins, who left no trace, displaced the Khitans, equally irrecoverable, and were in turn dispossessed by the Mongols, whose wide dominion embraced so much of the earth's surface that in 1227 A.D. the whole of High Asia, from the Caspian to Korea, and from the Indus to the Yellow Sea, recognised its sway—always excepting the strong but still despised sea-state of Japan, whose lusty inhabitants threw back the allied hosts of China, Korea, and the Mongol monarch in 1274 and 1281.

Swift-moving History in Little Known Lands

Yet if the Mongols, in an effort to wreak their vengeance on the Chinese, razed to the ground the cities of the vanquished so that their horsemen could ride over their deserted sites without stumbling, none the less they earned the acclamations of posterity by the facilities that the Mongol domination of Central Asia offered to communications between the West and Cathay. Marco Polo was not alone in his knowledge of the Court of the Great Khan, although doubtless he was the first to visit it. But this liberty of intercourse, existing only by the land route to Asia, was measured solely by the duration of the Mongol rule; freedom of action along the high-road from West to East stopped prematurely when the sway of Islam settled once again over Central Asia. Two centuries elapsed before, under the banners of the Manchus, bold horsemen of the North, in 1644, flashed once again through the plains of China, imposing, by a change of costume and of coiffure, perhaps the most striking effect of any that has followed in the train of these invasions.

But if the exclusiveness of the Mohammedan conquerors closed the route to Cathay so effectually that for two hundred years nothing more was heard of the country, Columbus, Cabot and others set themselves the task of opening up communications by water. But it was not Cathay that they reached. That was left to the Portuguese Raphael Perestralo to accomplish by sailing, in 1511, from Malacca to Canton, and thus winning the coveted distinction of first approaching

Opening the Gates of the East

China by sea. Fifty years later (1560) the same race succeeded in obtaining a settlement at Macao, while the Spaniards gazed with longing eyes from their strongholds in the Philippine Islands upon the rich junks on the China seas. Such was the effect of these trading visits from the West that the Chinese in their turn were emboldened to visit for themselves these outlying centres of Western traffic. But it was more usually vessels from Japan that were seen, for the Chinese were still without any special appetite for Western trade. With the islanders, on the other hand, a love of barter, acting on the native instincts of a maritime people, caused them to traverse these more distant waters ; although occasionally the scantiness of the resources in their own country moved them, so that they were propelled as much by stern necessity as by the lust of war and loot or a passion for trade. At first Polynesia, then Malaysia and India were visited. Again, trips were made to the remote coasts of Mexico. Still later, a colony founded at Goa became the centre of an important trading connection throughout the Indian hemisphere. In these voyages we see the attractive influence exercised by the Pacific and the Indian Oceans on an island people, who, fitted by temperament no less than by position, played in Eastern waters the rôle filled by the Elizabethan explorers on the coasts of the New World.

Lifting the Veil in Japan

As yet the distinctive call of the East had been heard only along the byways of Turkestan, and even those who had responded had ventured no further than the provinces of Cathay. Thus the isles of the Yellow Sea were to the Western mariner at the dawn of the sixteenth century as much a terra incognita as the Arctic and Antarctic regions are to the sailor of to-day. The spectacle of Japanese junks sailing gaily across the heaving waters of the Spanish Main and rounding the heel of India aroused the interest of the Western traders, who at once embarked for the fortunate lands of the East, arranging relations there even before they had been welcomed by the Chinese.

Raising the Curtain

With the arrival of Portuguese traders off Japan in 1542, a curtain was raised which was never quite to descend. In the interval a commercial entrepôt was established on the island of Hirado, and an intercourse set afoot that encouraged a visit from a Spanish squadron towards the close of the sixteenth century. This visit was returned in 1602 by the despatch of a ceremonial embassy to the Governor-General of the Philippines.

Throughout the first half of that century Japan continued to attract the adventurous, and the Dutch now followed in the wake of the Portuguese and Spanish ships. The reception of the bold spirits was unequal, and in 1624 all foreigners except the Dutch and the English were banished. By 1641 no traders were allowed but Dutch, who, in spite of being restricted to the island of Deshima, enjoyed a monopoly of the trade with Japan until 1867. In the meantime, abroad, rumours of the untold wealth of Asia had brought the Indies, together with Cathay and Japan, into distinct prominence. Under the Chinese Emperor Kien-Lung, whose reign of sixty years, 1735–1795, was remarkable for its conquests and successful administration, commercial intercourse with the West was regularised, and the founding of recognised trading settlements on the China coast ended the era of furtive attempts to open trade relations with this exclusive people. From these early trading stations have sprung the several commercial capitals that now grace the China coast. Hong Kong, Canton, Shanghai, Tientsin, and Newchang are the links existing to-day between the magnificence of the merchant princes and the sway of the " John Company." Of course conditions are now much altered, yet the memories of the past find a very splendid setting in the size, dignity, and importance of the modern treaty ports. Although the Far East was already manifesting its powers of holding the attention of the civilised world, the centres of interest there were concerned for many years solely with the kingdoms of China and Japan.

Untold Wealth of Asia

Australasia was a great unknown when the high latitudes of Asia were the fount of many conquering races. Obviously, therefore, the magnet of acquisitiveness pointed to the value of investigating the bleak northern steppes. Once started, the Pacific and the Amur were reached within eighty years under the impetus of an unrelenting progress which swept from west to east across the regions of



CALM IN THE FAR EAST: THE SETTING OF THE SUN IN THE MONGOLIAN DESERT

North Asia. Begun at the instigation of Stroganoff, who pushed the hesitating footsteps of Yermak across the Urals in 1580, by 1584 this gallant freebooter was offering to Ivan IV. with no uncertain voice the wide dominions of Siberia as the price of pardon. Khan after khan was unseated, tribe after tribe dispossessed, for neither Tartar nor Turk, Buriat nor Tunguse, could offer effective resistance to the Cossacks from the Don. In the end this all-conquering advance was stayed by the Chinese, who, in the treaty of Nertchinsk, 1689, contracted their first formal convention with a foreign Power. For nearly two centuries Russia faithfully observed the terms of this engagement, apprehensive of endangering the Kiachta trade if she continued her encroachments upon Manchu territory. By this action the trade of China, which has now made the problem of the Far East of dominating importance, became of more than passing interest to a Western Government. As generations passed, however, the advance of Russia, to the Pacific in one direction, and in search of a warm-water harbour in another, was resumed. First Eastern Siberia and then Northern Manchuria were added to her Asiatic satrapy, and the Amur ceased to be the containing line. Ultimately her frontier rested on the ocean to the north, the east, and the south; Vladivostock, Port Arthur, Harbin, and Mukden becoming the centres from which her Far Eastern dominions were administered.

China on the Western Horizon

The spirit of adventure, now inspiring all ranks of society as well as most of the civilised races of the world, was by no means satisfied by territorial conquest. The wide dominions of the sea, as yet untraced and all unknown, embraced an empire which appealed as strikingly to the sympathies of geographers as did the prospects of Far Eastern trade to the feelings of the East India merchants. Much the same ceaseless quest carried the Cossack Dejneff, in 1648, round the north-eastern extremity of Asia; Torres, a Spaniard commissioned by the Spanish Government of Peru, in 1606 negotiated the strait between New Guinea and the mainland; and various Dutch expeditions in 1606, 1616, 1618, 1627 and 1642 endured the dangers of the reef-bound coasts. But it was not until 1688 that the English first made their appearance on the Australian coast. In some measure the situation was awaiting the man. The voyages of Captain Cook (1769–1777) took up the work of geographical exploration in the Southern Hemisphere in a style quite befitting the records already elsewhere accomplished.

The English Find Australia

If between the continent of Australia and the coasts of China to-day there is only a commercial connection, it must not be forgotten that Australia is closely identified with the Polynesian races, who in turn are related to the early Japanese. New Zealand, Australia, New Caledonia, and New Guinea, as parts of one and the same continent, which now in many places has disappeared beneath the sea, present an ethnographic study of unusual importance and interest. In few other parts of the world is so great an ethnographic variation imposed upon a single connecting racial family as in the island divisions of the South Seas—Australasia, Polynesia, Micronesia, and Melanesia. It is by the existence of this underlying relationship that the Indo-Pacific races, whatever their specific origin, undoubtedly link up two hemispheres which organically are widely separated. By the abruptly disintegrated character of existing racial location, however, it is possible to read the impression made by the Pacific Ocean on the history of the world. If oceanic influences are represented in other ways to-day, and tribal migrations in a body are occurrences of the past, the necessities of the age still make such heavy demands on what is, after all, the immemorial highway of mankind that the Pacific can still be said to mould the destinies of races to-day as easily as it has obliterated them in the past.

Pacific and the Destinies of Peoples

Turning to Asia, although the Empires of Russia in Siberia and of China have worked out their destinies independently of the Pacific, remaining unaffected by it more than all other Eastern states, the part that the Pacific has played in the development of Asia since the eighteenth century cannot go unnoticed. Japan, in particular, has profited by the readiness of communication that the ocean provides to rise above prejudices which are usually inseparable from an island people and are pre-eminently to be expected among Asiatics. In China the absence of any prominent dependence on

the sea, either for food or means of transport, has produced in very sinister form an aversion against the West. None the less, under pressure from the Occident, and without regarding the example set by Japan, the Celestial Empire has permitted much commercial encroachment. Succeeding the galleons of the buccaneers have come the stately traders of the merchant princes of Europe and America, and these in turn have given place to the steamers of industrial trusts, exacting as large a tribute as the earliest marauders. While the consequences of industrial expansion among Oriental people have made the Pacific the focus of much restless energy, Japan, now as great a Power on land as formerly she was, and is, at sea, has developed an intelligence that has made her pre-eminent among the trading nations of the East. Undeterred by exertion, unmoved by expenditure, Japan has displaced the carrying trade of the Pacific by her fearless invasion of Western markets. Throughout the isles of the Southern Seas, and up and down the face of the Pacific slope, the islanders have swarmed, filling the lands of their passage with unaccustomed energy.

What will Happen To-morrow?

Looking back, then, at the conditions of Asia in the eighteenth and nineteenth centuries, and comparing them with those existing to-day, it will be noticed that a wide gulf still separates Japan from China in the twentieth century as it formerly separated China from the rest of the Far East. On the one side there is China, now emerging from revolution; on the other there is Japan, voicing the regeneration of Asia with raucous tones.

Meanwhile the vast interests of the Occident in the Orient are united with either power by frequent political intercourse and a traffic which has given to the Pacific priority of place in the battle for commercial supremacy. Yet while China is commercially independent of the West, and Japan dependent upon it, all branches of foreign industry cannot but view with alarm the increasing aggressiveness of the spirit of independence now inspiring Asia at the prompting of Japan. Obviously these signs are the indication of an approaching cleavage between East and West, which, when fully attained, will bear witness to the complete severance of the shackles hitherto enthralling Asia to the interests and purposes of the West. It must not be forgotten that Japan already has achieved her complete regeneration. Thirty years hence China, no doubt, will have followed suit, when a federacy of the Far Eastern Powers may become an accomplished fact. Even at this moment such a union is possible, and its realisation would impose upon all European Governments the immediate revision of their Asiatic policies.

China Thirty years Hence

At this time such a combination is hampered only by the unwillingness of China to accept the suggestions of Japan in anything affecting the policy of Asia, although, in spite of this objection, active reforming influences are gradually effecting important changes throughout the Chinese Empire. For the moment, therefore, Japan is content to tread alone the path she has marked out, encouraging her subjects by example to exploit Asia for the Asiatics, and to secure recognition of the doctrine of equality between the white and Asiatic races.

If the full significance of this movement is not yet discernible, there is enough evidence to show that the problem will rank among the greatest that the politics of the twentieth century can disclose. Not only one part of the civilised globe will be affected by the rise of a dominant Asia, for the whole world will be confronted equally with the necessity of resisting whatever indications may appear. If it is difficult to devise an arrangement short of total exclusion that does not admit an annual influx of a large number of Japanese, Chinese, Korean, or Indian immigrants into the lands affected by this invasion, it is at least tolerably certain that if the existing flow of Asiatics across the Pacific to America and Australasia continues unabated for a further decade, the areas now menaced will be inhabited by a white minority.

It appears evident that the continuation of the Far East under existing conditions is doubtful, if not impossible, in view of the awakening of Asia and the visible prejudices that Western democracy entertains against the Asiatic. Yet if the clash of conflicting interests ultimately precipitates a struggle between the two great racial divisions of the world, there can be no doubt that the moral teachings of humanity will be discredited.

Problem of the Century

ANGUS HAMILTON

GREAT DATES IN THE HISTORY OF JAPAN

B.C.	To 500 A.D.
660	Supposed foundation of the Japanese Empire by Jimmu
A.D.	
3	Emperor Suinin flourished. Abolition of the practice of burying retainers alive on the master's death
59	Reputed Korean immigration
125	Legendary hero Yamato Daké flourished
202	Reputed conquests in Korea by Empress Jingō Kōgō
397	Probable introduction of Chinese civilisation, through Korea
	500–1000
552	Introduction of Buddhism
645	The Taikwa Laws of Kōtōku
675	Encouragement of Buddhism by Temmu
689	The Laws reduced to a written code
750	Development of the Samurai class
782	Emperor Kwammu
800	Fusion of Shintō with Buddhism by Kōbō Daishi
889	High offices become hereditary in the Fujiwara family
	1000–1500
1155	Wars of the Taira and Minamoto clans
1186	Victory of the Minamoto
1192	The Minamoto Shōgunate established. Japanese feudal system
1220	Supremacy of the Hōjō family
1275	Attempt of Kublai Khan to invade Japan
1281	Destruction of the Chinese (Mongol) Armada
1333	Ashikaga revolt and overthrow of the Hōjō
1337	Rival Mikados of the North and South for fifty-five years
	1500–1800
1543	First appearance of Europeans (Portuguese) in Japan
1549	Francis Xavier attempts to introduce Christianity
1574	Overthrow of Ashikaga by Nobunaga
1581	Rapid development of Christianity
1582	Death of Nobunaga. Supremacy of his general Hideyoshi (Taikō Sama)
1583	Envoys sent from feudal lords to the Pope
1592	Hideyoshi's invasion of Korea
1598	Death of Hideyoshi. Accession to power of Iyeyasu
1606	Prohibition of Christianity
1615	Restoration of Minamoto Shōgunate
1617	Foreign trade limited to two ports
1621	Japanese prohibited from foreign travel
1624	Decree of expulsion against all foreigners except Dutch and Chinese
1637	Peasant and Christian revolt
1641	Dutch and Chinese restricted to Nagasaki
1694	Development of trade-guilds
1702	Russian squadron visits Japanese coast

A.D.	1800–1867
1804	Russia attempts unsuccessfully to open relations with Japan
1818	Captain Gordon at Yedo Bay
1844	Holland makes proposals for extension of trade
1848	Visit of American and French warships to Japanese waters
1853	Commodore Perry in Yedo Bay
1854	First Japanese Treaty with a Western Power (U.S.A.) in March. First Treaty with Great Britain in October
1855	Russian Treaty
1856	Dutch Treaty
1859	Readmission of Christian missionaries
1861	Attack on British Legation
1862	Murder of Mr. Richardson Japanese Embassy to the Treaty Powers
1863	Bombardment of Kago-shima by British
1864	Bombardment of Shimonoseki by international squadron Contest and reconciliation of the two great clans (Sats-cho)
1866	Kei-ki, last Shōgun New Conventions with Western Powers
1867	Accession of Mutsu-hito as Mikado Appointment of Europeans: French military and British naval instructors Resignation of Shōgun Kei-ki
	1868–1907
1868	Restoration of imperial power
1869	The Emperor takes up residence at Yedo, re-named Tokio. Emperor's "charter" oath The Daimiyo surrender feudal rights
1871	Feudalism abolished
1872	Establishment of religious toleration
1873	Adoption of Gregorian Calendar Universal Military Service
1874	Saga rebellion. Formosan expedition
1875	Saghalin exchanged for Kuriles
1876	Korean Treaty
1877	Revolt and death of Saigo
1879	Annexation of Riu-Kiu Islands
1889	Promulgation of the Constitution. Establishment of local self-government. Anti-foreign reaction
1890	First Imperial Parliament. New civil and commercial codes
1894	War with China
1895	Victory over China. Formosa annexed
1897	Revised customs tariff. Gold standard. Freedom of Press and public meetings
1899	New Treaties on terms of equality. Opening of the whole country
1900	Expedition against Boxers in China
1902	Anglo-Japanese agreement
1904	War with Russia
1905	Victory over Russia. Japan obtains Port Arthur, S. Saghalin, control of S. Manchuria, and protectorate of Korea Anglo-Japanese alliance
1907	Franco Japanese Agreement Russo-Japanese Convention
1910	Korea annexed
1911	Anglo-Japanese Agreement



JAPAN

THE COUNTRY AND THE PEOPLE

BY ARTHUR DIOSY

THE EMPIRE OF THE EASTERN SEAS

ASIA'S furthest outpost towards the vast waters of the Pacific Ocean, a long, narrow chain of rocky, volcanic islands, extends north-east to south-west along the eastern coast of the mainland, separated from it by the Sea of Japan and the China Seas. A glance at the map shows this long string of more than three thousand islands and islets, stretching from 51° 5′, the latitude of Shumo-shu, the most northern of the Kurile group of islands, down to 21° 48′, the latitude of the South Cape of Formosa, a total length of nearly thirty degrees. Its component parts extend from 157° 10′ east longitude, at Shumo-shu, as far westwards as 119° 20′, the position of the extreme western islets of the Pescadores, or Hokoto, archipelago, a distance of nearly thirty-eight degrees, the total breadth of the Empire of Dai Nippon—Great Japan.

Length and Breadth of Great Japan

The enormous length of the island empire, the configuration of which is likened by the Japanese to the slender body of a dragon-fly, provides a great variety of climate, from the Arctic rigour of the Kurile Islands and the Siberian climate, with its long and terrible winter and its short but fierce summer, obtaining in the larger northern islands, to the sweltering, steamy heat of Formosa, the tropic of Cancer passing through that island and through the Pescadores. These extreme temperatures apart—and they prevail only at the ends of the empire—Japan possesses a temperate climate, similar to that of the northern shores of the Mediterranean, but colder in winter and much damper, the excessive humidity causing both heat and cold to be very trying, though never dangerous. The rainfall is especially heavy in June and in September, but no month is entirely without rain. The hottest period of the year is called dō-yō, corresponding to our "dog-days," and follows the rainy season of June and early July.

Japan owes its great humidity, the consequent fertility of such parts of its surface as are cultivable—about 84·3 per cent. of the whole area of Japan proper is too rocky to yield food for man—and the luxuriant verdure that clothes the lower slopes of its wooded hills, to its insular position, and, chiefly, to two great factors, a current and a wind. The great warm current known as the Kuro-shio, the Black Brine, or Black Tide, flowing from the tropical region between the Philippines and Formosa, raises the temperature of the east coast, and, where it is in part deflected by contact with the southern coast of Kiū-shū, also of the west coast, acting in the same beneficent manner as the Gulf Stream of the Atlantic. The wind that

What Japan Owes to its Position



Keystone View Co.

A GLIMPSE OF THE INLAND SEA, THE LOVELIEST SHEET OF WATER IN JAPAN

Studded with hundreds of islands, every part of the Inland Sea of Japan, stretching 240 miles in length, and widening once to 40 miles, offers an enchanting prospect. The islands occur often in clusters, giving the appearance of lakes.

affects the Japanese climate most strongly is the north-east monsoon, tempered by the action of the dark, warm, ocean current.

The geographical position of Japan has had great influence on the history of its people, and clearly indicates the supremely important part the empire is destined to play in the future development of the Far East. Its insular character has preserved it from invasion—it is the proud and legitimate boast of the Japanese that no foe has, within historical times, trodden Japanese soil for more than a few hours—and whilst it rendered possible the seclusion in which the nation lived for more than two centuries, developing, undisturbed, a high civilisation of its own, the basis of many of the qualities displayed by the Japanese in our day, it has been, in recent times, the cause of Japan's real might in the world—her sea-power, naval and commercial.

The map shows the four principal islands of Japan Proper: HON-SHŪ, or Hon-dō—"Principal Circuit," the largest island of Japan, commonly called Nippon, really the name of the whole empire, meaning "Sun-origin," equivalent to Sunrise Land; KIŪ-SHŪ, or Nine Provinces; SHI-KOKU, or Four States; and the great northern island of YEZO, the second in size, officially termed Hokkai-dō—"North Sea Circuit."

The four islands extend, opposite the mainland, from the coast of the Russian Maritime Province, on the north-west, down to the southern extremity of the Korean peninsula, on the south-west. North of Yezo, facing the mouth of the great River Amur, the long, narrow island of Saghalin—Karafuto, in Japanese—belongs partly to Russia, partly to Japan, its southern districts, up to the fiftieth degree of latitude, being ceded to the victors by Article IX. of the Treaty of Portsmouth (1905). Separating these islands important channels afford communication between the Sea of Japan and



Keystone View Co.

A CRATER WITH EIGHTY VILLAGES, IN WHICH TWENTY THOUSAND PEOPLE LIVE

Twenty thousand people live in eighty villages in the outer crater of Aso-san, probably the largest crater on earth, competing, says Professor Milne, with some of the great craters of the moon. The crater of Aso-san is from 10 to 14 miles across, and its wall is everywhere 2,000 feet high, the highest peak being Taka-dake, 5,630 feet.

the Pacific. The Gulf of Tartary divides Saghalin from the mainland, whilst the Strait of La Pérouse, or Strait of Tsugaru, separates the island from Yezo. The Straits of Korea, between that empire, now under the protectorate of Japan, and the main island, Hon-shū, or Nippon, are the way of communication joining the Sea of Japan and the eastern part of the China Sea, the straits being divided into three channels by the island of Iki and by those of Tsu-shima, a name rendered for ever glorious by Togo's great victory on May 27th, 1905. The various straits are sufficiently narrow to be easily closed to an enemy by Japan's splendid fleet.

Although Japan has remained immune from invasion throughout historical time, its proximity to the mainland, and especially to the Korean peninsula, led, in prehistoric ages, to its receiving from the continent an influx of immigrants who gradually conquered the insular natives, and whose descendants probably form the main stock of the present Japanese race. It was this proximity that brought the civilisation of China into Japan, in the first instance through Korea; the same route was followed by another mighty invasion of foreign thought, the introduction of Buddhism.

No country has been better fashioned by Nature for the acquirement of sea-power than the Island Empire of the Rising Sun. Its enormous extent of coast-line, with countless indentations, especially numerous on the south-eastern coasts of Hon-shū, Shi-koku, and Kiū-shū, its many excellent harbours, naturally fortified by reason of the narrow entrances to the gulfs in which they are situated—for example: Nagasaki, in Kiū-shū, the naval stations at Sasebo, in the same island, Kure, in the Inland Sea, and Yokosuka, near Tōkio Bay—and, above all, the





Keystone View Co.

HAKONÉ LAKE AND THE GATEWAY TO THE INARI TEMPLE IN KIŌTO

Hakoné Lake, the top picture, is a delightful summer resort. The bottom picture, the avenue of Torii (portals), forming the entrance to a Shintō Temple at Kioto, is a wonderful sight. There are over 400 Torii, arranged in two colonnades.





Keystone View Co.

A GLIMPSE OF THE BUSY NAGOYA CANAL AND OF THE PARK AT KUMAMOTO

Nagoya is one of the great manufacturing cities of Japan, and a busy canal links the city with the port of Yokkaichi. The park of Suizenji, in Kumamoto, is a beautiful example of Japanese landscape gardening.

excellence of its seafaring population, supply the elements that give Japan the mastery in Far Eastern waters.

In the thousands of hamlets nestling in the bays, large and small, and creeks of the Japanese islands, dwells a hardy race of fishermen, inured to peril and fatigue, men of brawny strength and indomitable pluck, frugal and enduring, as fine material for the manning of warships and trading craft as the world has ever known. The persistence of those seafaring qualities which the Japanese owe chiefly to the natural advantages of their island home—partly, no doubt, to a strain of the blood of Malay sea-rovers, perhaps also of Polynesian canoe-men—is a remarkable phenomenon. In olden times they were bold seafarers, roaming as far as the Philippines and the coast of Indo-China. The waters of Formosa and of Siam were the scene of their piratical exploits, for, like all nations destined to be great at sea, they passed through a period when the spirit of adventure, as much as the lust for spoil, made them into daring sea-robbers.

Seafaring Qualities of Japanese

But, with the closing of Japan to foreign intercourse—save on a strictly limited scale—early in the seventeenth century, came the enactment of laws devised to prevent the Japanese from visiting foreign parts; the tonnage and build of ships were fixed by these decrees in such a manner that only fishing and coasting trips were thenceforward possible. This prohibition lasted for two centuries and a half; yet, on its removal, the germ of the seafaring qualities, supposed to have died out, was found to have been only in a state of suspended animation; it revived with surprising rapidity. In less than a quarter of a century it produced a naval *personnel* capable of manning a highly efficient fleet of thirty-three sea-going fighting-ships; in ten years more the amazed world recognised Japan's Navy as the triumphant victor in the greatest battle since Trafalgar, and coupled Admiral Togo's name with that of Nelson.

The Sea as Japan's Friend

The sea has, indeed, ever been Japan's friend; to this day it supports a large number of the population, and, in a sense, it may be said to keep the whole nation alive, as the fish that teem in Japanese waters supply a considerable part of the people's food. Every marine product available as nutriment is utilised, even seaweed of various kinds being largely used as food. Fishing seems to have been practised from the earliest times; it is probably in recognition of its antiquity and national importance that the Japanese of our day still affix to any gift a strip of dried seaweed, passed through a piece of paper peculiarly folded, the idea they thus symbolise being, it is said: "This is but a trumpery present, but it comes from a cheerful giver; be pleased to take it as it is meant. Remember our forefathers were poor fisherfolk; this strip of seaweed is to remind you that poverty is no crime."

There are many other customs connected with the harvest of the sea, and innumerable legends and folk-tales wherein the chief part is played by some marine spirit or by a visitor—deity or mortal—to the mysterious realms of the deep. And deep it is, for, off the eastern coast of Northern Japan, the sea-bed falls abruptly to a depression—the famous Tuscarora Deep, called after the United States warship of that name—of 4,655 fathoms, nearly 28,000 ft., or more than five miles, probably the deepest sea-bed in the world. The encircling sea forms an important part of most of the beautiful pictures the scenery of Japan offers to the delighted eye. Whether the waves dash tumultuously against the precipitous rocks of the south-eastern side of the main islands, especially of Shi-koku and Kiū-shū; whether the waters dance in the sunshine in the countless bays and creeks of those coasts where the frequency of the shelter afforded to fishing-craft led to an earlier and more dense settlement than on the north-west coast of Hon-shū; whether the far-famed Inland Sea shines like a mirror under the moonbeams, or the Sea of Japan tosses its grey billows or spreads a sullen expanse under the pall of fog caused by the meeting of warm and cold currents—in all its moods the ocean forms part of nearly all the grandest scenery of Japan.

Japan's Beautiful Scenery

The "Three Views," known to every Japanese man, woman and child, for they are portrayed in countless pictorial representations, are sea-scapes. The 808 islets of Matsu-shima, with the thousand trees from which the group derives its name of Pine Islands, are the glory of the province of Sen-dai, in Northern Hon-shū; the hoary tori-i, or gateway, of the great Shin-tō temple at the sacred island

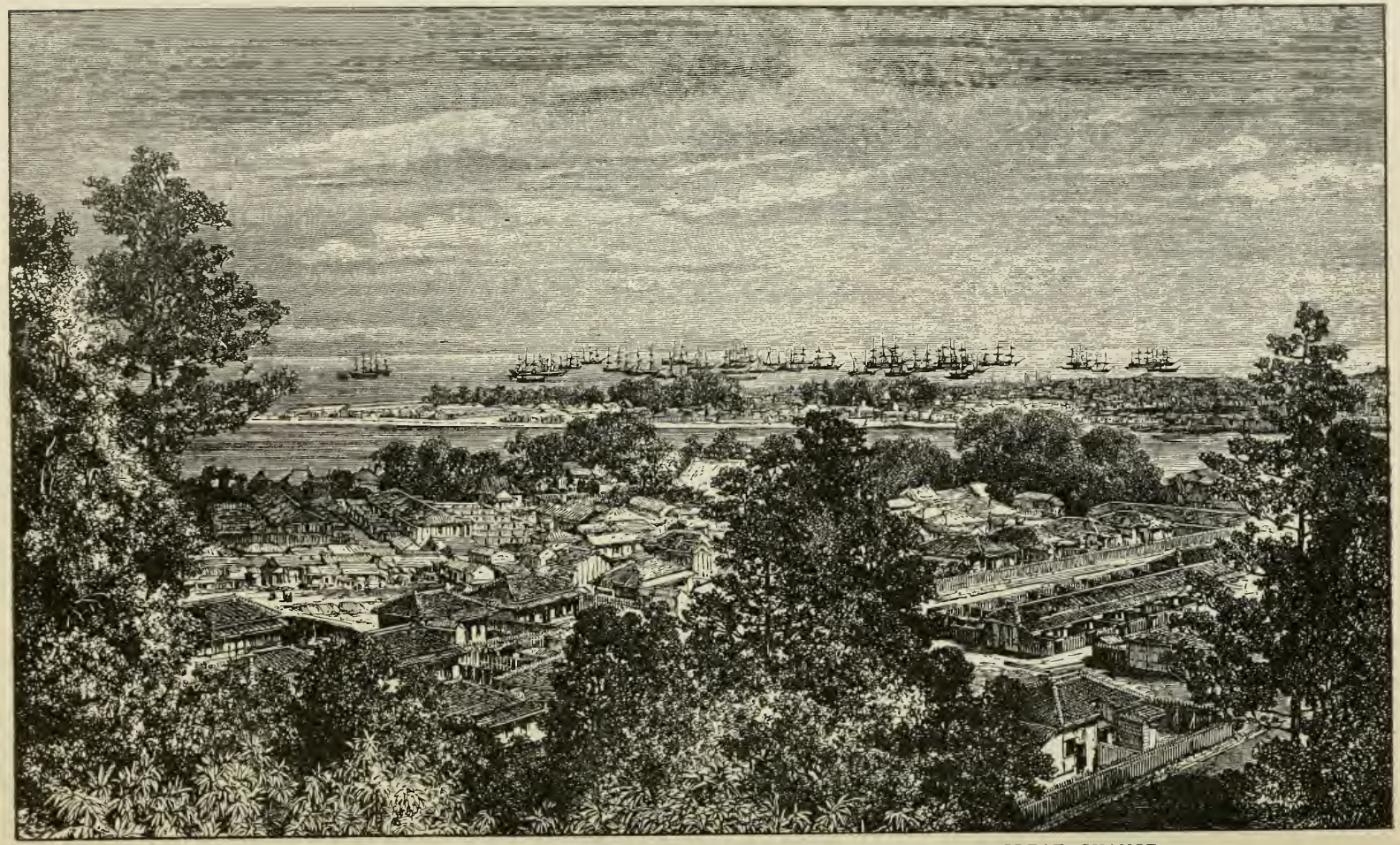






SCENES IN JAPAN AFTER AN EARTHQUAKE

There is at least one shock of earthquake every day in Japan; there are 500 shocks in a year. As late as 1891 an earthquake wrecked two populous towns and destroyed two smaller ones. These photographs show the havoc of such earthquakes.



YOKOHAMA: THE TOWN AND HARBOUR IN THE EARLY DAYS OF THE GREAT CHANGE



OLD TOKIO: THE CITY OF YEDO, SEAT OF THE GOVERNMENT OF THE SHŌGUNS FOR HUNDREDS OF YEARS

The "Japan Bridge," one of the striking features of the capital of Old Japan, was regarded as the centre of the empire, and from it all distances were measured.

of Miya-jima, or Itsuku-shima—so holy that no birth nor death may take place on the island, and no dog is allowed there—stands firmly amidst the very waves of the Inland Sea; Ama-no Hashidaté, the "Sacred Bridge," stretches its slender two-mile length of sandy spit, only 190 ft. broad—crowned, all along, with an avenue of pine-trees—into the blue waters of the gulf of Miya-zu, in the Sea of Japan.

The so-called Inland Sea, 240 miles long from its narrow western entrance, only one mile across, between Shimo-no-seki on the main island and Mo-ji, the busy colliery port in Kiū-shū, to its eastern extremity, where it joins the open sea through the Aka-shi and Naru-to Straits—it widens to forty miles where the Bungo Channel divides Shi-koku from Kiūshū—is perhaps the most lovely sheet of salt water in the world. Studded with many hundreds of islands, every part of its expanse offers an enchanting prospect, the islets being often in clusters, making many stretches appear like lakes.

Water enters into the beauty of every Japanese landscape; districts remote from the sea have their lakes and rivers—generally short, swiftly-flowing streams, almost, sometimes quite, dry in summer, exposing beds of pebbles, but rushing torrents in the wet season.

Biwa is the largest lake in Japan, and far-famed for its scenery; its area is about the same as that of the Lake of Geneva, and it is nearly as beautiful. Lake Chū-zen-ji, or Chū-gū-shi, is surrounded by luxuriant verdure at an altitude of 4,375 ft. above sea-level, and is surpassed in beauty by the smaller Lake Yumoto, higher up, in the sulphur-springs region, 5,000 ft. above the sea.



Keystone View Co.

MODERN YOKOHAMA: THE HARBOUR, SEEN FROM THE HEIGHTS OF THE TOWN



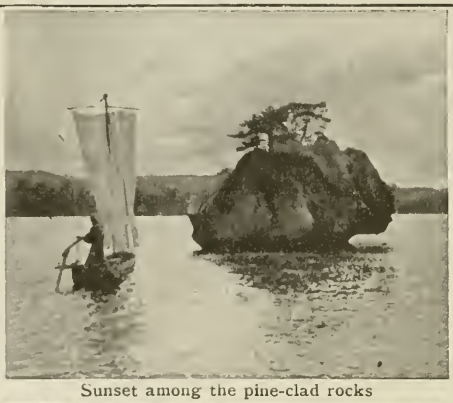
OVERLOOKING MODERN TOKIO, THE CAPITAL OF JAPAN

There are many other lovely lakes in Japan, Lake Hakoné amongst them. Those just mentioned are singled out because they lie in the mountainous district round Nikkō, a region on the main islands, to the north of Tōkio, presenting, in their greatest beauty, characteristic features of Japanese inland scenery —imposing mountains, stately, venerable trees, and grand waterfalls comparable to those of Norway. The aspect of the Japanese islands is, as may be inferred, diversified, stern and rugged amidst the dark forests of the north, smiling in the sunlit regions further south, beautiful almost everywhere.

The land is chiefly mountainous, the ranges running from south-west to north east, interspersed with smiling valleys, fertile plains, chequered into regular squares by the narrow, raised embankments dividing the rice-fields, with, here and there, wild, desolate moors in places where even the untiring industry and agricultural skill of the people could not induce the stubborn ground to yield



Looking over the Bay of 808 Islands



Sunset among the pine-clad rocks



A natural arch The White Co.

SCENES IN MATSUSHIMA BAY, JAPAN

sustenance. Where anything useful can possibly be made to grow, the Japanese grow it. Beside plants of utility, they grow, to a greater extent than in any other land, plants intended only for pleasure, for the delight they give the Japanese eye by their beauty.

In no other country are flowers so reverently admired as in Japan; nowhere are they more skilfully grown and tended. Every month has a special blossom, and what may be termed its flower festival, when the people, high and low, rich and poor, go in their tens of thousands to seek happiness in the contemplation of Nature's most delicate productions. The plum-blossom appears about a month after the New Year, and is followed by the far-famed cherry-flower early in April, when, in many ancient groves and on many hillsides, the lightest of delicate clouds, faintly pink, seem to have settled on the trees.

No words can do justice to the exquisite beauty of Japan in cherry-blossom time; it is then easily to be understood how dear the flower of the cherry is to the Japanese heart. To the people of Great Japan it is the emblem of patriotism and of chivalry, sharing their affections with the chrysanthemum, the badge of the empire. Other flowers grown to wonderful perfection are the peony, symbolical of valour; the graceful wistaria, the glowing azalea, the slim-stalked iris, the convolvulus, or "morning-glory," in many strange forms, and the lotus, the sacred flower of Buddhism. Besides these and other cultivated flowers, Japan possesses wild blossoms galore that fleck its plains and valleys with colour. The leaves of the maple turn, in November, to hues of crimson and gold, clothing the woods with a glory to be equalled only in Canada.

The natural beauty of Japan has undoubtedly fostered the æsthetic taste inborn with the Japanese of all classes. High and low, they admire and enjoy intensely the lovely scenes amidst which they dwell. This admiration and enjoyment are strong incentives to their patriotism. It seems to them that their beautiful country must indeed be *Kami-no-Kuni*, "the Land of the Gods." To travelled Occidentals, the scenery of Japan suggests, in places, the Norwegian fjords; in others, the smiling shores of the Italian lakes; at some points the coves of Devonshire, the rocky coasts of the Channel Islands, or

the pleasant hills of Surrey. That these impressions are correct is proved by the fact that Japanese travellers who visit any of these places never fail to recognise their similarity to some favourite spot in Japan.

The "backbone" of the southern half of the main island and of the whole island of Shikoku consists of rock, principally primitive gneiss and schists; Kiū-shū, Yezo and the northern half of the main island are partly, the Kurile islands—Chishima—entirely, volcanic. Subterranean fires still smoulder in many parts of Japan, many of the mountains being volcanoes, not all of them extinct. Fuji, the glorious cone so dear to the Japanese heart, uplifting its peak 12,365 ft. from the surrounding plain, is a volcano that erupted last in January, 1708. Fifty-one volcanoes, such as Asama and Bandai-san in Eastern Japan, Aso-san in Kiū-shū, Koma-ga-take in Yezo, have been active in recent years, some of them, especially Bandai-san, with disastrous results. Nor do only volcanoes threaten danger to the inhabitants of Japan: earthquakes are frequent—about 500 shocks yearly—and sometimes appallingly destructive of life and property.

The great earthquake in the Gifu region, in the central provinces of the main island, on October 28th, 1891, wrecked two populous towns—Gifu and Ōgaki—completely destroyed two smaller ones—Kasamatsu and Takegahana—killed about ten thousand people, and caused more or less severe wounds to nearly twenty thousand. In Japanese earthquakes, a great part of the destruction arises from the innumerable fires that break out when the flimsy houses—mostly of wood, with paper partitions, in sliding frames, between the rooms—collapse through the shock, scattering the glowing charcoal from the kitchens amidst heaps of highly inflammable materials. Earth-tremors bring not only fiery ruin in their train; they cause at times upheavals of the sea that work stupendous havoc. On the evening of June 15th, 1896, the north-eastern coasts of the main island were overwhelmed by a so-called "tidal wave." The sea, impelled probably by a seismic convulsion on the bed of the Northern Pacific, rose in a wave of towering height and, rushing inland with terrific speed, engulfed whole districts. More than 28,000 lives were lost, and more than 17,000 people were injured.



Sea-girt gateway of Miya-jima, a famous Shintō shrine



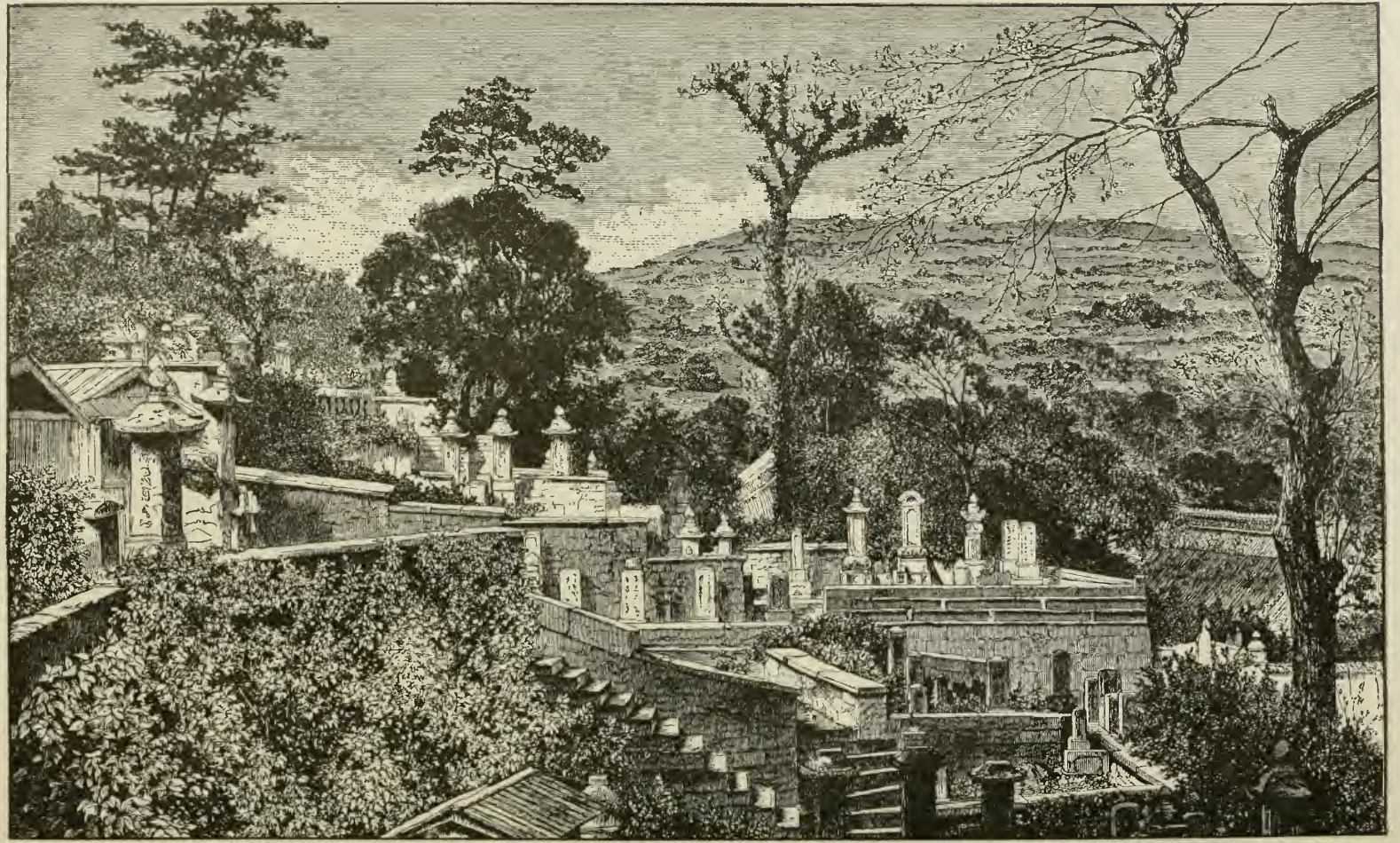
The Sacred Bridge at Nikko



The White Co.

View of Fuji-yama across Motosu

THREE FAMOUS SCENES IN JAPAN



THE CEMETERY HILL AT NAGASAKI BEFORE THE MODERN EXPANSION OF THE TOWN



THE CRATER OF FUJI, THE MOST GLORIOUS MOUNTAIN OF JAPAN, MORE THAN TWO MILES HIGH

Japan has fifty volcanoes that have been active in recent years; this picture shows the crater of the most famous mountain in the island empire. Fuji, the cone so dear to the Japanese heart, uplifts its peak 12,365 feet from the plain. It has not erupted since the beginning of 1708. No other natural feature in Japan comes so often into its pictures as Fuji.



MAP OF THE ISLAND EMPIRE OF JAPAN



QUALITIES OF THE JAPANESE PEOPLE

IT is in presence of great calamities that the best qualities of the Japanese masses shine brilliantly. Their resignation, their patient endurance, the altruism that prompts them to mutual help and to countless acts of kindness; their self-sacrificing bravery in the work of rescue, the proud honesty with which they will content themselves with the barest pittance, when relief is distributed, so that enough may be left for others in greater need—these are only some of the fine characteristics of the wonderful islanders whose achievements in recent times have earned the respectful admiration of the world, even of their late foes. There is, of course, another aspect of their character; they are not without some of the vices and failings human nature is heir to. An attempt is made, later in these pages, to describe their moral and mental characteristics, and in so doing to hold the scales impartially.

The Wonderful Islanders

According to the census of 1913 there were 52,985,423 subjects of the Emperor of Japan (excluding Korea), and their number is increasing steadily and rapidly. The number of males exceeds that of females by well-nigh a million. The population is very dense in the fertile regions, and increases so rapidly that emigration is absolutely necessary. The masses are healthy and strong, capable of great endurance—a fact brought into striking prominence by the achievements of the Japanese forces in the Arctic winter of Manchuria, and in its torrid summer. The Japanese can, as a rule, bear cold much better than heat. Living thinly clad in unwarmed houses that offer but little protection and are by day draughty as bird-cages, they early become inured to cold. The average physique of the upper classes is by no means so good as that of the manual workers, and is considerably below the Occidental standards.

A Race of Little People

The Japanese are a black-haired race, with smooth skins, varying in colour through various yellowish shades, from a hue of brown, in the case of those working in the sun, to a light tint no darker than that of the Southern European, with comparatively large skulls, prominent cheek-bones, and a tendency to projecting jaws. They are of small stature, the average height of the male being only slightly over five feet (5·02 ft.), that of the female slightly over four feet six inches (4·66 ft.). In other words, the men are of about the same average stature as European females, the women proportionately shorter.



Underwood & Underwood

THE RISING GENERATION IN JAPAN

There are, of course, exceptions, some Japanese being of a height that would cause them to be considered tall amongst Occidentals; but they appear as giants amongst their diminutive compatriots. Both men and women have small hands and feet, those of the upper classes being beautifully shaped. Even amongst manual workers it is not rare to find, especially amongst females, hands of an aristocratic type. The shapely appearance of the feet is often spoiled by thick ankles, probably



THE CHILDREN'S FESTIVAL: FEAST OF DOLLS IN A JAPANESE HOME
Japan is the land of love for children, and many quaint customs are observed for their sake. On the third day of the third month in each year the Feast of Dolls is held in thousands of Japanese homes, and the day is one of great delight.

the result of wearing sandals. The black hair is abundant on the head, straight and coarse; there is hardly any on the arms, legs and chest. The eyelashes are scanty, and grow immediately out of the eyelids, without the "hem" that borders the eyelids of Occidental races. The eyes are dark, full in the broad-faced, plebeian type, narrow in the aristocratic cast of countenance. In the latter they are generally set more or less obliquely, their slanting appearance being enhanced by the fact that the aperture for the eye seems to have been cut, as it were, directly in the smooth skin, tightly stretched over the upper part of the face, not, as in the white races, in a very marked depression under the brow.

The Two Types of Japanese

There are two plainly distinct types in the nation. The majority are "stocky," rather squat people, with broad, round faces, rather thick lips and flat noses; the minority, of the aristocratic type, are more slenderly built, with long oval face and aquiline nose. In both types the trunk is long as compared with the legs, their shortness being probably due, in some measure, to the national habit of sitting on the floor, in a kneeling posture, the weight of the body being thrown back on to the heels. Sitting on benches, as in school and in barracks, necessitated by the introduction of Western educational and military methods, has somewhat improved the proportions of the Japanese body in this respect. The admirable gymnastic training given in the schools to children of both sexes, and, still more, the naval or military service to which every able-bodied Japanese adult male is liable, have done wonders in improving the physique of the nation. Statistics collected by the Army Medical Department clearly show that the race is gradually growing taller since the introduction of universal service. The Japanese grow to maturity more rapidly than Occidentals; they also age earlier. As in other countries, very old women are more numerous than very aged men. Both the slender, often weakly, upper classes and the stout plebeians are nimble in their movements, have supple limbs and remarkably skilful fingers. The workers use their toes to hold and steady the material on which they are at work, often sitting at their labour where Occidentals would stand. The great toe is well separated from the others, owing to the effect of the loop of cord passing between them to secure the sandal to the foot, the tabi, or sock, of

Physique of the Nation

cotton-cloth being made with a separate compartment for the great toe. The skin of the whole body is generally of satin-like smoothness, owing, no doubt, to the very hot baths—at a temperature of about 110° F.—in which all Japanese indulge at least once a day, thus maintaining their well-deserved reputation as the cleanest nation in the world.

Cleanest Nation in the World

To the Occidental eye, the majority of Japanese men are not comely, although there are notable exceptions, presenting fine faces, of noble and intellectual type. The women are often very pretty, judged by the Occidental standard; they are nearly always graceful and charming, owing to their exquisite manners and gentle voice. The chief element in their charm is undoubtedly their perfect femininity. There is absolutely nothing masculine about their ways or their speech, yet, when the need arises, they are capable of courage and self-sacrifice that places them on the same high level as their heroic fellow-countrymen. It may safely be asserted that there are no more dutiful wives, no better mothers. There are certainly no daughters with a greater sense of filial piety, a virtue that forms the basis of family life in Japan.

Throughout the Far East the whole social fabric is based on the family; the whole state is, indeed, considered as one great family, with the Emperor at its head. It is the mothers who train Japanese children from infancy in the spirit of reverence and obedience to parents and elders in the family circle, and to the Emperor as the supreme chief of the great national family. And well do the children assimilate the lessons of obedience and devotion so carefully inculcated by the mother, for there are none more docile than the boys and girls of Japan, whose respectful, courteous manners, not only towards their parents, but towards elder brothers and sisters, earn the admiration of Occidentals. The chief qualities of the Japanese race are patriotism—which is, with them, synonymous with loyalty—courage, filial piety, and cleanliness. In love of country, in self-sacrifice for the common weal, in loyalty to the sovereign—with them a cult—in reckless gallantry, and in bodily cleanliness, the Japanese surpass all other nations of our time. It may be truly said that patriotism is their

The Chief Qualities of the Race



THE VARIOUS GRADES OF SOCIETY IN OLD JAPAN

Society in Old Japan was based on the principle that the producer was worthy of high honour. There were four great classes. At the top were the *Shi*, the nobility and gentry, warriors, administrators, and scholars. Next were the *No*, the agricultural class; thirdly came the *Ko*, craftsmen and artists; and at the bottom were the *Sho*, traders and bankers. Some of the wealthier classes were thus at the bottom, because they were not producers but only circulators.



A lantern-mender



A clock-maker

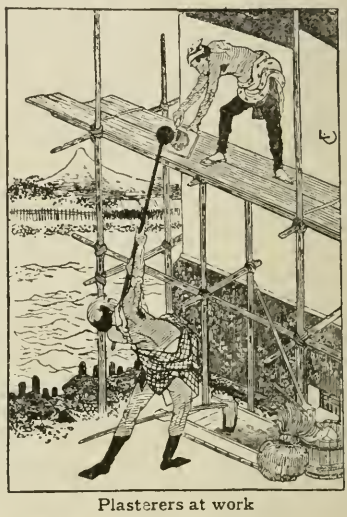


Coopers at work





Artists



Plasterers at work



A marionette show in the street



The Royal Mail in Old Japan

LIFE AND WORK IN OLD JAPAN: SOME TYPES IN THE ANCIENT CAPITAL



Buddhist priest



Peasant woman reeling silk



Mediæval friar



Preparing cotton for spinning



Servant



Samurai bowing



Japanese ladies at their toilet, using burnished metal mirrors



Lady in walking costume



A Japanese lady and her servant,
showing the aristocratic and plebeian types of face



Lady in walking costume

SOME TYPES IN OLD JAPAN: CHIEFLY DEPICTED BY NATIVE ARTISTS



WINTER IN JAPAN: BY A JAPANESE ARTIST

real religion; it inspires their magnificent courage in war, on land and sea; it supplies the incentive of their lives in times of peace, all merely personal considerations being subordinate to this passionate national feeling.

The people of Japan are distinguished, besides, by quick intelligence, a remarkable power of observation—derived, no doubt, from their close study of Nature, of which they are devoted lovers—by a mastery of detail, and a very retentive memory, fostered by the system of learning by rote imported from China, together with the writing by means of ideographic signs, necessitating the memorising of thousands of characters standing for words. In politeness they stand first amongst the nations, every incident of life being attended by strictly-defined rules of social etiquette, observed by all, not only, as in Occidental countries, by the more highly educated classes. Their courtesy, though often degenerating into mere hollow formality, is based on a kindly regard for the feelings of others, a generous altruism and a consequent depreciation of self. They are hospitable and open-handed, the giving of presents attending numerous festivals and many occasions in social life.

Schooled from babyhood by the rules of their rigid etiquette, Japanese, young and old, of all classes, are remarkably quiet in their demeanour, the higher ranks being extremely dignified in manner, and completely concealing their feelings under an imperturbable mask. They bear pain, both physical and mental, with Spartan stoicism, their nerves being much less easily excited than those of Occidentals, so that they have often been described as "a nation without nerves." Their apparent contempt for death arises chiefly from the fact that, to most of them, the passing out of this world does not imply a total severance from mundane interests, their general belief being that the spirits of the departed have cognisance of the doings of those they leave behind. This idea, inseparable from the ancestor-worship that has prevailed amongst them from time immemorial, and still prevails, was well exemplified in their great struggle with Russia, their forces being buoyed up by the conviction that the spirits of all the warriors who had died for Japan were fighting side by side with their gallant successors.

Artistic Taste of the Japanese

The love of the beautiful in Nature, common to all members of the Japanese race, is probably one of the chief factors in the artistic feeling so highly developed among all classes. Their appreciation of beauty of form and colour, their exquisite sense of appropriateness in decoration, the delicate restraint so evident in the productions of their wonderfully skilful, patient artist-craftsmen, are too well known to require more than passing mention. Even their commonest household utensils are beautiful in shape, elegant, and well adapted to their purpose. Their innate good taste has added a delicate refinement to the vigorous art they received, in early times, from China, chiefly by way of Korea. Their æsthetic perception

enables even the poorest Japanese to derive intense pleasure from the contemplation of the beautiful, thus providing them with many delights unknown to the vast majority of modern Occidentals. Combined with the simplicity and frugality of their lives, and with their naturally contented spirit, it would seem to have enabled the Japanese to solve the great problem "how to be happy, though poor."

A nation possessing, to a high degree, the virtues and qualities just enumerated would appear to be living in a perfect Utopia. There is, however, shade in the picture as well as bright light. This happy, contented, smiling people, pre-eminent in domestic virtues, industrious, fond of learning, easily governed, gentle in manners and speech, capable of rising, in moments of national emergency, to admirable heights of patriotic heroism and self-sacrifice, is, after all, human, and consequently tainted with some of the vices and many of the defects inherent in human nature. The defects of the Japanese character are, to a great extent, inseparable from their very virtues and good qualities in their extreme manifestations. Their intense patriotism is the cause of the anti-foreign spirit still, unfortunately, rife amongst them. Their country is to them "the Land of the Gods," their nation the Elect People, living under the special protection of Heaven, whose blessings are transmitted to them by the benevolence of a superhuman sovereign, directly descended, in unbroken line, from the Sun Goddess.



LADY AT HER TOILET: BY A JAPANESE ARTIST

With this belief firmly rooted in the minds of the great majority of the people, it is no wonder that all those who have not the good fortune to be born Japanese appear to them not only as foreigners, but as Gentiles. The statesmen of New Japan are profuse in their assurances that it is the desire of their people to form a unit, on terms of equality, in the great family of nations.

National Pride of the Japanese

This assurance is echoed by many Japanese writers; it is in accordance with the spirit of the tolerant, all-embracing, gentle Buddhist faith, brimming over with sympathy for all living creatures; it is also in agreement with the calm, placid tenets of the Chinese philosophy that, with Buddhism, has to such a great extent moulded the thought of Japan. Yet those statesmen and writers know full well that in this respect neither Buddhism, nor Chinese philosophy, nor the cosmopolitan spirit of the middle period of the nineteenth century, nor the brotherhood of man inculcated by true Christianity, has succeeded, to any appreciable degree, in causing the Japanese to look upon foreigners as brothers, or even on the same plane with their own heaven-descended race.

The reckless bravery of the Japanese, their contempt for death, are closely related to the slight value they set upon human life and to the national delight in tales of bloodshed. Co-existent with the mildness of their manners and the placid tenor of their domestic life, there is found, deep in Japanese hearts, a wild delight in carnage, the legacy,



JAPANESE ON A PILGRIMAGE

naturally most cherished amongst those of the warrior class, of centuries of internecine warfare. The sword, "the living soul of the Samurai," is still held in reverence as the instrument not only of national defence against the foreign foe, but of vengeance and of the chastisement of one looked upon by the wielder of the weapon as an enemy to the State. Hence the indulgence with which political assassination is still regarded by the masses in Japan. As the brutal instincts, inherited from primeval ancestors, often become manifest in an English-speaking crowd watching a football match or a boxing contest, so, in Japan, the old savagery reveals itself, time and again, at fencing bouts, the excited cries of the combatants recalling the bad, wild days of yore.

This fierce spirit seems incompatible with the noble generosity towards prisoners of war, and the tender care of the enemy's wounded and sick, that redounded to the glory of the Japanese in both their great struggles in our time, the wars against China and against Russia. It is difficult to believe that savagery can survive in the breasts of people capable of organising such an admirable institution as the Red Cross Society of Japan, whose noble work, in war and peace, is one of the chief glories of New Japan; but it must be remembered that the young Great Power still feels itself to be undergoing probation under the eyes of an observant and critical world. The natural instinct of the Japanese warrior would lead him utterly to destroy the foe who dared to oppose his Emperor's will, and it requires the application of the most severe discipline to make him understand that on his exercise of humane forbearance to the vanquished depends, to a great extent, his nation's good repute among the Powers.

This desire to stand well in the opinion of foreign nations has been so thoroughly inculcated in the people of New Japan that every individual brought into contact with foreigners beyond the boundaries of his native land feels that the honour of Japan is dependent on his behaviour, even in minute particulars. Hence the high reputation for excellent conduct enjoyed by Japanese students and others residing, or travelling, abroad.

The altruism and self-effacement, born of the family system, fostered by the division of the nation into clans—now officially abolished, but still binding huge groups of families with strong ties—and culminating in the most complete devotion to the head of the national family, the Emperor, are the causes of a peculiar defect in the Japanese character—the lack of individuality. It may be said of



A FISH HAWKER IN JAPAN

the Japanese that, on most important matters, they feel and think by millions. The whole system of their civilisation tends to make individual effort subservient to the common cause; the reverence and obedience inculcated from early childhood are not likely to develop the spirit of individuality. Hence the wonderful facility with which the Japanese combine to carry out any policy they recognise as needful for the public welfare once that course has been clearly indicated by their trusted leaders as one that has the Emperor's approval.

Japan is, for this reason, the land where leagues, unions, guilds, trusts and "combines" work with astonishing efficiency, such institutions being, by their very nature, well suited to the national character. There are, of course, exceptional Japanese who chafe under the repression of their strong individuality; these occasionally break through the national custom and strike out an independent line. Their fate is not encouraging to those who might be tempted to follow their example. Public opinion reproves them, and they are soon made to feel that their conduct is looked upon as anti-national. Those amongst them who will not bow their heads to the popular verdict, and refuse to be reduced to the level at which the nation strives to keep the individual, soon find life in their own country unbearable. In various cities of Europe, still more in those of North America, such Japanese individualists may be found living in self-imposed exile, shunned by their compatriots, until the day, which comes to most of them, when they submit and go home to resume their place in the ranks of a nation that abhors eccentricity and expects every man to fit into his proper groove in the great national machine.

The mental activity of the Japanese, their respect for knowledge and for all intellectual pursuits, causing them to admire keen wits and exercise of brain-power, have probably contributed in a large measure to form one of the traits in their character that is repellant to Occidentals—their inclination to be cunning and deceitful. In spite of the high and pure ideals of their chivalry, they have not our loathing for deceit, our contempt for chicanery, our respect for the truth. A Japanese convicted of an untruth merely conceals his annoyance at being found out by a smile, sometimes by a laugh, and is not deterred from another statement at variance with facts should he consider it useful to make one. Low cunning is frequently looked upon as cleverness; the suppression of facts is so common that there is no other country where it is so difficult to arrive at the truth. The national failing of intense secretiveness arises, no doubt, from the suspicious nature of the people, who distrust not only all foreigners, but even most of their own race—a condition of mind due, to a great extent, to the widely ramified system of spying that flourished during the rule of the Tokugawa Shōguns, and still exists to a lesser degree.



A PEASANT IN A RAIN CLOAK
(Made of straw.)

Their infinite capacity for attention to the most minute details leads to a certain pettiness, a disinclination to consider great abstract questions, and, consequently, to a narrowness of view that accounts for some of the blunders which occur in the execution of the otherwise marvellously efficient policy of the rulers of Japan.

The exquisite politeness of the Japanese is responsible for a great part of that insincerity with which they are taxed by Occidentals who have been much in contact with them. This extreme courtesy makes them so anxious to avoid any speech that might possibly give offence that they frequently distort the truth, suppress it entirely, or replace it by polite fiction, intended to give pleasure. It should be remembered that, in the knightly times of



THE END OF A JAPANESE FEAST: BRINGING IN THE SEA-BREAM

old—they continued until the early 'seventies of the nineteenth century—a Japanese had to be very guarded in his speech and demeanour ; quite unintentionally, a word lightly spoken, an incautious gesture, might give dire offence to a Samurai—one of the gentry, privileged to wear two swords—who would be quick to resent the fancied slight to his punctilious sense of personal dignity. Insults, real, and often imaginary, were wiped out with blood.

Manners of the Haughty Samurai

Hence the endeavour to avoid any possible cause of offence, for the same reason that made Europeans very circumspect in their behaviour in the days when gentlemen wore swords and drew them on small provocation.

To such a pitch was punctilio carried amongst Japanese gentlemen until quite recent times that they preferred death, inflicted by their own hands in the most painful manner—by self-disembowelment, or hara-kiri, more elegantly termed seppuku, or "self-immolation"—to living with a stain on their honour, such stain being often merely inability to disprove a slanderous imputation. To this day, the Japanese remain the most acutely sensitive people on the point of honour ; so "touchy" are they that friendly intercourse with Occidentals is thereby rendered extremely difficult.

What places an additional bar to perfect cordiality in such relations is the deplorable fact that an Occidental may unwittingly give grave offence to a Japanese without the latter giving any sign of displeasure at the time. Allowance is seldom made for the perfectly unintentional error on the part of the offender, whilst the grievance is allowed to rankle, is rarely forgiven, and never forgotten. Where an Occidental would certainly call his friend's attention to the fact that he was displeased by some remark or action that would, no doubt, be promptly atoned for by a sincere apology, thus terminating the incident, the Japanese says nothing. He nurses his resentment, sometimes for years, until a fitting opportunity presents itself to avenge the real, or fancied, wound to his feelings by some particularly unpleasant action directed against the Occidental, all unconscious of his offence.

This unfortunate peculiarity of the Japanese character is the outcome of two main currents that run through the national temperament—the spirit of secrecy, already alluded to, and the thirst for revenge. The latter, possibly due to the strain of Malay blood in the much-mixed Japanese race, is one of the chief stumbling-blocks hindering the introduction of Christianity, and has prevented

Buddhism, also a religion teaching meekness, from obtaining a complete hold on the people. In its petty forms, this spirit of long-cherished spite is merely annoying; in its extreme manifestations it becomes exceedingly dangerous.

It may be thought that the admirable magnanimity displayed by the Japanese towards the vanquished in their wars with China and with Russia affords evidence that the old spirit of revenge is dying out. Unfortunately, it is as strong as ever, the explanation of the apparent anomaly being that, in both cases, the foe was vanquished, and thus became, according to the principles of Japanese chivalry, an object for mercy and compassion. As long as the opponent resists, or refuses to surrender at the mercy of the conqueror, he is implacably attacked; the moment he has, metaphorically speaking, grovelled and placed the victor's foot on his head, he is raised from the ground and treated with the greatest consideration.

This applies not only to warfare, but to those incidents in civil life, already alluded to, in which a Japanese considers himself aggrieved, especially when the offender is a foreigner. In such cases, humble apology for the slight, however unintentional—in fact, an attitude amounting to "I do not know what I have done to offend; but, in any case, I own I am in the wrong, and promise, with sincere apologies, not to offend again; deal with me as you think fit," would generally ensure the restoration of good relations, provided the apology be sufficiently public to gratify the self-esteem of the Japanese. It is hardly to be expected that a self-respecting Occidental would demean himself thus to atone for an error unconsciously committed.

Defects of Japanese Character

Japanese self-esteem has just been mentioned; it often becomes insufferable arrogance, showing plainly, through a cloak of false modesty, "the pride that apes humility." This arrogance, displayed chiefly towards foreigners, but also by Japanese in official positions towards their fellow-countrymen of inferior rank, is intimately connected with another national failing, excessive vanity. It is less noticeable amongst sailors and soldiers than amongst civil officials of corresponding rank.

Minor failings of the Japanese are jealousy, envy of those who achieve success, and, connected with these faults,



A GROUP OF CIVIL AND MILITARY OFFICIALS IN OLD JAPAN



A STREET SCENE IN A VILLAGE OF OLD JAPAN

a great love of gossip and a readiness to listen to slander, or to disseminate it.

There are, finally, two charges to be examined that are frequently levelled at the Japanese by those who profess to know them well—the accusations of immorality, sexual and commercial. The first of these charges may be disposed of by the statement that the Japanese are about as moral in their sexual relations as the Latin nations of Europe, with the advantage slightly in favour of the Japanese. What has given them an evil repute in this respect is, probably, the fact that they consider as natural, and treat accordingly, certain evils that the Northern Occidental peoples affect to ignore. The natural, simple life led by the vast majority of Japanese predisposes them to take a natural, sensible view of matters that the less primitive conditions of Western civilisation have imbued with an objectionable significance. They see, for instance, no harm in nudity where it is unavoidable, as in bathing, or convenient, as in the performance of hard work in hot weather. A Japanese woman will feel no shame at being seen naked when entering or leaving the daily bath, but would strongly object to what she would consider the gross immodesty of exposing a considerable surface of her body in Occidental evening dress.

Japanese Ideas of Modesty

In the first case, the nudity is looked upon as quite natural; in the second, as useless and provocative of pruriency.

As to the commercial morality of the Japanese, it is necessary to observe the great difference that exists between the position, in this respect, of Japanese State institutions, financial and commercial corporations, and firms of the first rank on the one hand, and the great mass of traders on the other. The Imperial Japanese Government, municipal corporations, and the great financial institutions and industrial and commercial associations under State control (such as subsidised steamship companies), have always met their obligations with scrupulous fidelity and are likely to continue to do so. With them the national honour is considered at stake; it is certain that the last Japanese will part with his last garment sooner than involve the national credit in disgrace by failure to meet the nation's engagements towards the foreign creditor.

National Honour in Commerce

It is, unfortunately, quite otherwise in the case of the great bulk of the trading classes. There are, in Japan, a number of first-class firms, some of them established for centuries, whose reputation is above reproach; but between these and the majority of the merchants a great gulf is fixed. It must be remembered that, until



IN THE OUTSKIRTS OF YEDO, NOW TŌKIO, THE CAPITAL OF JAPAN

the beginning of the New Era, in the early 'seventies of the nineteenth century, the trading community formed the lowest of the four classes, then sharply and immutably divided one from the other, composing that part of the Japanese nation that had full civil rights (below them stood only the Eta, who carried on despised occupations, involving contamination by contact with dead bodies, human or animal, and the outcast Hi-nin).

Results of Old Class Divisions

The nation was divided into Shi, the nobility and gentry, the military, scholarly and administrative class; No, the agriculturists; Ko, the craftsmen, with whom the artists were counted; and Sho, the traders, placed below farmers and handicraftsmen as non-producers.

The natural consequence of this low place in the social scale was a lack of self-respect on the part of those engaged in commerce and finance that led them to be unmindful of their good repute. Trade and finance were looked upon by the majority as occupations unworthy of a gentleman and beneath the callings of the peasant and the workman; every trick was considered excusable when practised by the merchant, whose whole business was looked upon as a sort of warfare, in which cunning stratagem could be legitimately employed to the end of personal gain, a purpose appearing most unworthy to the classes swayed by the old knightly spirit. The evil effects, on a class as on an individual, of a bad reputation and consequent public contempt have, unfortunately, outlived the abolition of the old social divisions. The Japanese merchants and bankers no longer form a separate and despised class; the gentry, even members of the aristocracy, are engaging every day more and more in financial, industrial and commercial pursuits, many of them with marked success, yet the old taint adheres to the bulk of the trading community.

There are, of course, many strictly honourable dealers in Japan, even amongst the smaller tradespeople and retailers. It is amongst the wholesale merchants and the brokers that lapses from the straight path of commercial integrity are still frequent, especially in their dealings with foreigners. It is, unfortunately, still the case that an advantage gained over the foreigner, even by the most shady methods, is looked upon as, in some way, a national victory. This deplorable point of view is likely to prevail as long as Japanese nationalism exists in its extreme form.

The Desire to Trick the Foreigner

The Japanese Government has, time after time, loudly proclaimed, by the mouths of its statesmen at home, and its representatives abroad, its desire to

facilitate, in every way, the introduction of foreign capital, the vital influence so urgently required for the realisation of Japan's bold schemes of industrial and commercial development. Strange to say, this cordial invitation, though energetically responded to by the capitalists of Europe, especially of Britain, and by those of America, has not, as yet, led to the investment of any very considerable sums in Japanese enterprises, although, as is well-known, the Japanese Government has easily borrowed many millions sterling in London, New York and Paris, for purposes of State. The chief obstacle to the investment on a large scale, of foreign capital in Japanese enterprises is to be found in the fact that, forgetting that capital is, after all, a commodity, therefore subject to the laws of supply and demand, the Japanese financial and industrial classes do not realise that the capitalist, being virtually the seller, controls the price of his property.

Japanese National Finance

A mistaken impression appears to prevail in Japan that foreign capital is *obliged* to find an outlet in the Empire of the Rising Sun and must, therefore, submit to such conditions as may seem suitable to the Japanese and accept such security as the Japanese may deem sufficient. As long as this erroneous view obtains, there can be no considerable influx of foreign money into the coffers of Japanese industrial and commercial concerns. Experience is proverbially the best teacher; the dearth of funds that is certain to follow, in due time, the abnormal and feverish activity which is animating Japanese economic conditions, immediately after the successful issue of the great struggle with Russia, will undoubtedly induce a more reasonable appreciation of the circumstances. Once the Japanese have been taught by experience that they must regulate their demands by the lowest terms considered acceptable by the foreign holders of capital, a vast and profitable field will lie before those Occidental capitalists who have the advantage of expert advice in their selection of Japanese investments.

The Social Qualities of the Japanese

As a general rule, it may be stated that intercourse with the people of Japan leaves Occidentals very favourably impressed with the social qualities of the inhabitants of the island empire. Their exquisite courtesy, their gentle manners, and the thousand ways in which they demonstrate that kindness of heart that lubricates the wheels of life's machinery all tend to make ordinary, everyday relations with Japanese a delightful experience. It is only when the more serious aspects of life are approached that the Occidental begins to feel the wide divergence between his point of view, in nearly every important matter, and that of the Japanese.

It is exceedingly difficult to specify with exactitude the particular feature of the Japanese character which lies at the root of the unfortunate fact that nearly all Occidentals who have had serious dealings with the people of Dai Nippon have emerged from their experience exasperated and often disgusted. It is probable that want of candour is the trait that acts as the sharpest irritant, for it must be confessed that frankness, so highly prized by Occidentals, especially by those of the nations that "push the world along," is neither appreciated at its true value nor generally practised by the Japanese. The very nature of their elaborate courtesy makes them shrink from that bluff frankness which obtains amongst Occidentals on a footing of intimate friendship. Even the Japanese mode of speech is a hindrance to direct statement of fact; a Japanese, asked if he has ever been in England, will reply, in his own tongue, "Yes," and, after a pause, "I have *never* visited England." He would not deem it polite to shock his questioner by a direct negative!

Courtesy of the Japanese

Another peculiarity of the Japanese character, that is apt to loom large in Occidental eyes as a grave national failing, is the lack of the spirit of gratitude, as it is understood by the white races. The Japanese have, hitherto, never failed to deal out fair measure, according to the letter of the contract, to the numerous Occidentals whom they have employed, as advisers and instructors, in adapting Western civilisation to the material needs of their re-organised empire; their labours, as well as those of friends of Japan who have rendered voluntary, unpaid services, have also been recognised by the bestowal of marks of Imperial favour; but it is doubtful whether a real feeling of what we term gratitude



THE AMAZING SUICIDE: A GHASTLY FACT IN THE LIFE OF OLD JAPAN

This picture represents the Japanese custom of "Hara-kiri," or disembowelment, known also as "Seppuku," or self-immolation, the form of suicide which was the privilege of gentry in Old Japan instead of death at the hands of the executioner. Instances of this ghastly act occurred frequently during the Russo-Japanese war, Japanese destroying themselves rather than surrender. The standing figure in the picture is the best friend of the man about to die, acting as his kai-shaku, or second, ready to strike off his head on receiving the sign from the dying man.

has ever entered the hearts of the nation towards the many distinguished men who have given of their best to assist in the making of New Japan, or to spread a knowledge of its greatness. This doubt does not apply to the Navy and Army; those gallant forces, keeping the sacred fire of chivalry alight, show deep gratitude to the British sailors and European soldiers — French and, after them, Germans—who instructed them in the modern art of war.



TYPICAL JAPANESE OF THE MIDDLE CLASS

Sympathy with their aspirations is, of course, cordially welcomed from every quarter by the Japanese; they are delighted to receive help of any kind from Occidental friends at such times as, in their view, render such assistance or sympathy necessary. When the occasion has passed, and they feel independent of foreign support, they not only cease to make any effort to attract, but take no pains to conceal their indifference to it. This attitude, induced by the severely practical nature of their policy, is repugnant to Occidental feeling, and has caused the accusation to be brought against the Japanese that they treat their foreign friends "like lemons, to be thrown away once the juice has been squeezed out of them."

This course of conduct should not be judged too harshly; it should be remembered that such a proud, hypersensitive nation is ever desirous of displaying its independence, and is consequently averse to appearing to solicit help or sympathy from the outside. A gifted Frenchman, a true friend of Japan, the late Félix Régamey, several of whose spirited pictures of Japan are reproduced in this History, and who did much to gain sympathy for that country amongst his compatriots at a time when they were little inclined to extend it, said to the writer: "It would, indeed, be a pleasure to help the Japanese, but they will not let one help them." It is noticeable that this coolness towards foreign sympathy is usually coincident with a period of national elation, consequent on the victory of Japanese arms, or the obtaining of some solid advantage by Japanese diplomacy.

Reviewing impartially the good and the bad points of the Japanese national character, one must come to the comforting conclusion that its faults are likely to disappear, or, at least, to be considerably attenuated in the future, as Japan enters more and more into the active life of the family of nations. The pressure of the public opinion of the vast majority of civilised mankind must exercise a beneficial influence in bringing the Japanese gradually into line with ourselves where the points of view are still too widely divergent to admit of cordial co-operation between them and Occidentals. The virtues now pre-eminently Japanese may, indeed probably will, suffer to a certain extent in the process; it is the writer's firm conviction that enough of them will remain to enable the Japanese to accomplish the glorious destiny towards which they are marching. Their patriotism, their valour, their thoroughness, their wisdom in matters of national moment, are of the virtues that make nations great.

ARTHUR DIOSY



University of California
SOUTHERN REGIONAL LIBRARY FACILITY
405 Hilgard Avenue, Los Angeles, CA 90024-1388
Return this material to the library
from which it was borrowed.

DATE DUE

JUN 2 2 1998

SRLF
2 WEEK LOAN

DATE DUE

DEC 0 5 2003

SRLF
WEEK LOAN

UC SOUTHERN REGIONAL LIBRARY FACILITY
D 000 797 497 5